

Extending Cognitive-Behavioural Theory and Therapy to Medically Unexplained Symptoms and Long-Term Physical Conditions: A Hybrid Transdiagnostic/Problem Specific Approach

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Medically unexplained symptoms (MUS) are not only common and distressing, but are also typically poorly managed in general medical settings. Those suffering from these problems tend to incur significantly higher health costs than the general population. There are many effective treatments for different MUS; these are almost entirely based on cognitive-behavioural approaches. However, the wide range of treatment protocols tend to be 'syndrome specific'. As such, they do not generalise well in terms of training and application, making them expensive and difficult to disseminate, suggesting the desirability of developing a transdiagnostic approach. The general basis of such a CBT grounded transdiagnostic approach is considered, and the particular need to incorporate cognitive elements of both anxiety or health anxiety (threat) and depression (loss) is highlighted. Key empirically grounded and evidence-based processes (both specific and general) previously identified as underpinning the maintenance of MUS are delineated. The way in which these can be combined in a transdiagnostic model that accounts for most MUS presentations is presented and linked to a formulation-driven transdiagnostic treatment strategy, which is described. However, the need to take more syndrome-specific issues into account in treatment is identified, suggesting that the optimum treatment may be a hybrid transdiagnostic/specific approach with formulation, shared understanding, belief change strategies, and behavioural experiments at its heart. The generalisation of such approaches to psychological problems occurring in the context of 'long-term conditions' is identified as a further important development that is now within reach.

■ **Keywords:** health anxiety, cognitive-behavioural therapy, medically unexplained symptoms, transdiagnostic treatment, physical symptoms

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Medically unexplained symptoms (MUS) are an extremely common source of distress and disability for service users attending both primary and secondary health care settings. Those experiencing such problems represent not only a substantial pool of unresolved distress and disability but are also a considerable drain on health care resources, which are deployed to no effect or may even worsen their problems in such cases. These patients gain little benefit from current medical treatments, which by definition will be misdirected, and are seldom offered any psychological treatment to help them deal more effectively with these problems. The way in which MUS are presently managed thus represents an expensive failure to meet important health care needs in people where there is evidence of high levels of psychological distress and unnecessary disability. In this article we consider how we might better understand and treat psychological aspects of MUS. First, we will consider the prevalence and impact of such problems on the health care system and society as a whole, particularly considering economic issues. The issues raised by the wide range of presentations and treatments for MUS are considered, which strongly suggest the need for a more trans-diagnostic approach. We therefore describe how they might be conceptualised and treated in psychological terms from an empirically grounded perspective (Salkovskis, 2002).

MUS Are Common and Costly

Estimates of the prevalence of MUS in both clinical and general populations vary due to the diversity in definitions, as well as diagnostic and operational issues. Epidemiological studies have shown that MUS are the most common group of symptoms in primary care (Katon, Ries, & Kleinman, 1984), responsible for up to 35% of visits to general practitioners (GPs; Peveler, Kilkenny, & Kinmonth, 1997; Simon & VonKorff, 1991).

Much of the data are specific to particular groups of symptoms; for example, prevalence rates for chronic fatigue (CF) and chronic fatigue syndrome (CFS) in the adult general population have been estimated at 30.5% and 1.0% respectively, with CFS largely unrecognised by GPs (van't Leven, Zielhuis, van der Mee, Verbeek, & Bleijenberg, 2010). CFS in primary care in the general population ranges from 1.6% to 2.1% (Cho, Menezes, Hotopf, Bhugra, & Wessely, 2009) and point prevalence of CF for UK primary care has been estimated at 11.3% (Wessely, Chalder, Hirsch, Wallace, & Wright, 1997).

Fibromyalgia estimates are reported to be 2–2.4% (Mas et al., 2008; Wolfe, Ross, Anderson, Russell, & Hebert, 1995) in the general population, while other studies estimate rates of 1–11% across community care (McBeth & Jones, 2007). The prevalence of irritable bowel syndrome in Europe and the United Kingdom ranges from 8–22% (Müller-Lissner et al., 2001) and accounts for 12% of GP consultations (Drossman, Camilleri, Mayer, & Whitehead, 2002).

Despite the diversity in estimates of MUS there is widespread agreement that such patients consume disproportionately large amounts of health care resources across all health care settings (Barsky, Orav, & Bates, 2005; Reynolds, Vernon, Bouchery, & Reeves, 2004; Robinson et al., 2003; Smith Jr., Monson, & Ray, 1986; Katon, Lin, von Korff, & Russo, 1991), to little effect. Evidence suggests specific use of health care resources irrespective of mental or physical comorbidities (Barsky et al., 2005; Rief, Martin, Klaiberg, & Brähler, 2005; Smith Jr. et al., 1986). Even so, studies across primary care consistently report that when MUS coexist with mental health

problems, this leads to increased use of health care resources (Barsky et al., 2005; Haftgoli et al., 2010). Moreover, MUS patients report many days in bed a month (Smith Jr. et al., 1986), as well as increased rates of sick leave (Hiller, Fichter, & Rief, 2003). Birmingham, Cohen, Hague, and Parsonage (2010) estimated the cost of medically unexplained somatic symptoms among the working age population (18–65 years) in England. They report that indirect costs (i.e., productivity loss) and direct costs (use of health services) from MUS exceeded 14 billion in the fiscal year 2008–09. It is worth noting that Birmingham et al.'s estimate does not include the full range of MUS, as the authors did not, for instance, include functional somatic syndromes that are reported to have a considerable prevalence among both clinical and non-clinical populations (Hungin, Chang, Locke, Dennis, & Barghout, 2005).

The situation with long-term conditions (LTC) is more complex and specific, but the broad principles still apply: where mental health problems co-exist and are not appropriately treated, then patients experience elevated levels of distress and their physical care is both more complex and costly.

What Are the Treatment Options?

Almost by definition, MUS is not a diagnosis, but rather a residual category when other medical diagnoses have been excluded, something which obviously makes these problems difficult to treat in a coherent way. At the same time, little benefit comes from the application of mental health diagnoses, such as anxiety and depression, as an alternative, despite the clear evidence of comorbidity, as patients understandably regard the focus as being incorrect where such problems are not clearly present. This issue can lead to problems with engagement in such treatment, making engagement a priority in any intervention. Such patients understandably do not view themselves as psychiatrically 'ill', but are concerned about their MUS and its implications. Some health professionals tend to assume that the full explanation of the range of problems described as MUS will be psychological, but this is in the context of the absence of an adequate psychological account of the problems. Sometimes the group is defined largely in terms of their help-seeking behaviour alone — for example, 'frequent attenders' — and it is clear that seeking medical help is common, expensive, and of little value for such patients. A more pejorative term, 'frequent flyers', has also been used inappropriately.

Fortunately, there is good evidence for the effectiveness of psychological interventions that clearly help people experiencing distressing and disabling levels of MUS. However, although the dominant modality in such treatments is said to be cognitive-behavioural therapy (CBT), its treatment outcome research includes a dismaying variety of flavours, types and variants of CBT, mostly with a highly specialised emphasis and detailed (and different) treatment and training protocols. Mostly, these approaches are specific to particular MUS, but even within narrower groupings a range of often quite different CBT approaches have been used for specific MUS, with varying degrees of underpinning evidence. Examples of treatments for specific MUS include, but are not confined to, chronic pain, chronic fatigue syndrome, non-cardiac chest pain, premenstrual problems, breathlessness, dizziness, insomnia, and so on. Although delivering such a diversity of approaches may be feasible in a few larger secondary care settings, it is extremely unlikely that it will be possible to implement the range of such interventions in primary care; a different approach is needed. If it were possible

to effectively implement a transdiagnostic approach to helping those experiencing psychological distress linked to the wide range of medically unexplained symptoms, then it would be reasonable to hope that such work could, with some adjustments, be applied to helping those experiencing excessive distress linked to persistent medically *explained* symptoms, sometimes known as ‘long-term conditions’ (LTC). This exciting possibility will be briefly explored later in this article.

So, while it is clear that something more general in CBT terms would make sense from a pragmatic point of view, this needs to be balanced with the clear need to address the specific pattern of symptoms and disability seen in particular MUS. For example, avoidance and anxiety of agoraphobic proportions is often seen in irritable bowel syndrome, while fatigue and withdrawal from exertion can restrict those with chronic fatigue syndrome (CFS) to an extraordinary degree but for quite different reasons. It seems unlikely that the same therapeutic strategies targeting these superficially similar behavioural restrictions would be effective, while it is also evident that there may be some commonalities in terms of the overarching structure of the treatment. On the basis of the way CBT has so successfully developed over the last half century or so, we suggest here that the solution is to adopt a hybrid transdiagnostic/specific approach. To place this in context, we will first consider the historical and conceptual development of transdiagnostic and specific approaches that has resulted in current strategies commonly used in CBT today, and what this tells us about the obstacles to the development and application of a transdiagnostic/specific hybrid treatment in MUS, which could also be applied to psychological factors in LTC.

The Evolution of Behaviour Therapy Into Cognitive-Behaviour Therapy: The Admixture of the Transdiagnostic and Specific

In mental health settings, psychological approaches to both understanding and treatment has come to be dominated by behavioural, cognitive, and cognitive behavioural theories and their related therapies (described here collectively as CB approaches). There are two factors that most likely explain the almost total shift from ‘traditional’ psychotherapies to CB approaches. First, governments, regulators and health care providers have adopted the principles of evidence-based medicine, an approach that readily lends itself to this therapy modality. Second, and in our view more importantly, the development of CB approaches has at its heart treatment development and dissemination based on the interplay between psychological theory and research evidence (including but not confined to outcome research), with treatments developing and being applied on the basis not just of their evidence base but also empirically grounded approaches (Salkovskis, 2002). Key aspects of problems and how they can be treated have been systematically investigated in the context of established, emerging and developing theories under the broad banners of behavioural, cognitive, and cognitive behavioural theories. Although this set of underpinnings is not specific to these approaches, traditional psychotherapies have more typically tended to develop according to schools of thought and therapy led by authoritative individuals or groups who are mostly unquestioned.

There has been some shift towards embracing evidence in other ‘schools’ of psychotherapy, at least in terms of outcomes (see, e.g., Roth, Fonagy, & Fonagy, 1996), but the field has been hobbled in terms of further development by its insistence on the primacy of the therapeutic relationship as the principal mechanism of change in ther-

apy. CB approaches, by contrast, are clear that a trusting collaborative relationship is mostly necessary but seldom sufficient. The demonstrable effectiveness of written and computer- or online-based approaches to therapy (Andersson, 2015) has strained the traditional conceptualisation of the therapeutic relationship almost to breaking point. We suggest here that the therapeutic relationship is a particularly good way of supporting people seeking help in the process of finding different ways of reacting to the situations and events, internal or external, that they find persistently distressing and problematic.

For the present, CB approaches are, for most mental health problems, the *treatments* of choice, and this type of therapy continues to evolve and be refined (Clark, 2004). The use of the plural ‘treatments’ is not accidental. An early transdiagnostic approach to phobic anxiety (Wolpe, 1958), systematic desensitisation, based on the theory of reciprocal inhibition, evolved into exposure. Exposure was also applied across phobic anxiety disorders (Marks, 1979), becoming in the 1970s more divergent in application when it began to include completely new conceptualisations, broadening out from anxiety. Thus, a different approach was indicated for depression, with behavioural (Ferster, 1973, Seligman, 1972) and CB approaches developing (Abrahamson, Seligman, & Teasdale, 1978; Beck, 1976). The 1980s and 1990s saw a proliferation and expansion of a range of disparate CB approaches, with the development of highly specific treatment for a range of diagnoses both within anxiety (e.g., panic, social phobia, obsessive compulsive disorder) and more broadly (e.g., eating disorders, chronic pain, psychosis; Hawton et al., 1989).

While it was clear that the development of these increasingly specific treatments was associated with bigger effect sizes relative to earlier versions of treatment, there were also reasons to be concerned for the field as a whole. Instead of learning a single approach to psychological treatment, therapists who wanted to deliver state-of-the-art treatment had to learn multiple approaches, even within diagnostic groupings such as anxiety disorders or eating disorders (Wilamowska et al., 2010; Fairburn, Cooper, & Shafran, 2003). As therapies became specialised, so also did the therapists, and this in the context of still evolving treatments. Simply put, therapists and health services struggled to keep up. Other issues, such as the common problem of comorbidity, mean that there are concerns about the development of highly specialist therapists focusing on particular specific problems.

In this climate of proliferating and divergent treatments, clinical researchers began to seek treatments that would bring together the best of the effective treatments without being so specialised. In eating disorders, Fairburn et al. (2003) presented a transdiagnostic theory and related transdiagnostic treatment across eating disorders. Various transdiagnostic approaches to anxiety have been proposed, including those of Norton and Barrera (2012) and Barlow’s Unified Protocol for Emotional Disorders (Wilamowska et al., 2010).

We are now at an important point in the development of CBT. Specific treatments and transdiagnostic treatments have both been found to be effective to varying degrees. Thus far, guidelines such as those produced by the National Institute for Health and Care Excellence (NICE), tend to favour more specific approaches for each anxiety disorder and depression. However, if taken in the context of stepped care, in which less severe and chronic conditions are treated with a ‘lighter touch’ and less focused treatments than more severe and chronic problems, then it seems that both transdiagnostic and specific approaches may have roles to play, without adopting a ‘one size fits all’ strategy.

CBT Is and Is Not Transdiagnostic, So It Can Be Applied to MUS

Examination of currently recommended CBT approaches to the range of disorders where it is recommended suggests that, having started from common principles set out by Wolpe (1958), Beck (1976) and others, there has been some convergence in terms of the fundamental principles underpinning treatment, with differences being mainly in the details of how these principles are applied to each case and type of case. We propose that understanding how to blend in a skilful way these two ways of working is key to the effective treatment of MUS, using a hybrid transdiagnostic/specific approach.

Treatment thus starts, regardless of the specific problem, with the therapist engaging *with* the patient, and from this undertaking, an assessment that allows them to develop a formulation that should be used as the basis for the development of a shared understanding. The shared understanding will provide the basis for the therapist and client agreeing on strategies that the client can be supported in deploying and evaluating in terms of the impact on their distress and experience of symptoms. This is, of course, the key to engaging the patient, something that has been described in some detail as successful in the treatment of severe health anxiety where disease conviction is a major issue (Salkovskis, Warwick, & Deale, 2003). The shared understanding, often referred to as formulation, evolves throughout the course of treatment. In the early stages of therapy it may be more generic, becoming more focused on particular symptoms as treatment progresses. Towards the later stages of treatment, some strategies will be highly specific to the particular pattern of symptoms and responses experienced by the particular client. Thus, once a preliminary shared understanding is agreed, the basis for more transdiagnostic interventions includes, but is not confined to, cognitive restructuring (helping patients to identify and change the distorted pattern of thinking and meaning they attach to their symptoms), behavioural activation, exposure to feared situations as behavioural experiments, and applied relaxation. The latter stages of treatment focus on more specific aspects of the MUS, such as the 'agoraphobic'-type fears in IBS patients who have fears of imminently soiling themselves, beliefs about the potential longer-term catastrophic effects of physical activity in CFS and pain patients, and so on.

To achieve a formulation that can be effectively transformed into a shared understanding, we believe that a core model (acting as a template from which some or all of the components can be used to identify key processes) is required. As our starting point, we consider that the CB model of health anxiety, which forms the basis of treatment of those who have excessive anxiety linked to health concerns, is likely to be particularly valuable (Salkovskis & Warwick, 1986; Warwick & Salkovskis, 1990). This treatment has been shown to be effective in those primarily identified as experiencing health anxiety in the absence of significant physical health challenges (e.g., Clark et al., 1998). More recently, we have shown that the treatment for health anxiety generalises to medical populations screened for the presence of health anxiety even when the therapists were not highly expert in CBT and were trained specifically in the treatment of health anxiety in this setting (Tyrer et al., 2014).

However, it is also clear from the most cursory consideration of the literature on MUS that health anxiety (or general anxiety), although often important, cannot account for all distress in MUS; for example, although the majority of chronic pain patients experience significant levels of health anxiety, some do not (Rode, Salkovskis, Dowd, & Hanna, 2006). Although it is not clear as to the extent of health anxiety

in CFS, it is likely to be lower than that seen in chronic pain, with other emotions, particularly depression, being prominent. Although CBT models for anxiety, including health anxiety, tend to be transdiagnostic, there are major differences with depression. What is needed, then, is a theoretical model similar to those used to guide specific treatments in anxiety and depression that allows the merging of these and other emotional responses in the production of symptom-related distress.

A CB model that incorporates both transdiagnostic and 'disorder-specific' elements in understanding the development and maintenance of symptoms and, crucially, disability, would seem particularly promising for treatment of conditions within the spectrum of MUS. Such an approach is attractive, not least because of the effectiveness already demonstrated with respect to the treatment of health anxiety/hypochondriasis *inter alia*. We take the view that primary care is the key setting to both understanding MUS and lessening the debilitating effects of this range of conditions for patients, and addressing the devastating direct and indirect economic impact of MUS.

Something Old, Something New and Much That Is Borrowed: Constructing a Transdiagnostic Model for MUS

Cognitive Model of Severity of Anxiety

Unsurprisingly, the model starts from the most fundamental assumption of cognitive approaches, which is that it is not the particular situation, event or stimulus that generates an emotional response, but rather the meaning the person attaches to their particular experience (Beck, 1976). When applied to physical symptoms, this means that a particular bodily variation will elicit an emotional response according to what it means to them; that is, how they interpret or appraise it. Simply speaking, it goes like this: bodily variation (physical sensation or other perceived bodily change) and/or medically relevant information \rightarrow meaning \rightarrow emotion.

Why would some people misinterpret their experience of symptoms and medical issues in a particularly negative way? The cognitive theory suggests that some combination of prior beliefs and experience, and the formation of currently unhelpful assumptions, is responsible in a complex way (Salkovskis, 1996); in treatment terms, however, this is seldom the starting point. The cognitive model also assumes that the extent and severity of emotional response arises from the details of the meaning; however, this perception of meaning (in the case of MUS, typically in terms of illness, disability, and disease) relates in turn to a variety of factors, that is, perceived likelihood it will happen \times perceived 'awfulness' it did, and perceived coping ability when it does $+$ perceived rescue factors.

The elements in this conceptualisation are: (1) the perceived probability of the feared consequence, such as progressively worsening illness, more likely is, of course, worse; (2) how severe this consequence will be (in terms of its likelihood of disabling, of being ultimately fatal, of interfering with key parts of the person's life and functioning and so on); (3) how capable the person would be of coping with the illness they believe they have and all of its consequences; and (4) how likely it would be that other factors would intervene to reduce the severity and the person's ability to cope (such as medical treatment, support from others, and so on). For sad or depressed mood, future issues are transposed to past concerns and events or situations which have already happened.

Clearly, this view indicates why people may, at any specific time, experience particularly negative emotions when they notice bodily variations or otherwise and become

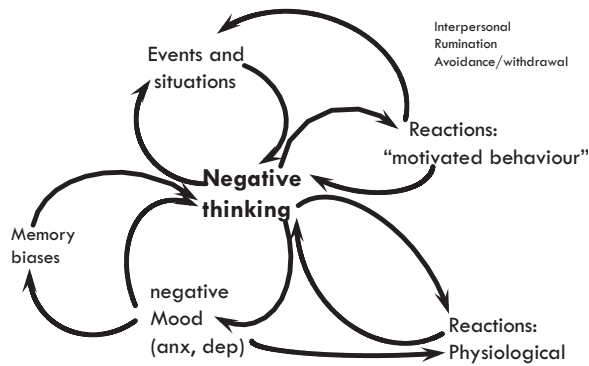


FIGURE 1

Transdiagnostic model incorporating major maintaining factors of distress and disability.

concerned about aspects of their health, and why these emotions may sometimes be severe and potentially overwhelming (Salkovskis, 2010). The next step in developing a comprehensive model is to specify the factors involved in the *persistence* of such experiences (i.e., what maintains them and potentially creates intense and persistent psychological distress), as opposed to a more transient experience of noticing bodily changes. Such an understanding can and should form the basis of a shared understanding between therapist and service user at an early stage in treatment. Figure 1 shows the simplest template for the application of a CB approach to individuals; as indicated below, this template should be used collaboratively to develop a shared understanding, applying those components identified at assessment in the form described by the service user. Such a model also needs to be able to incorporate factors identified as important in maintaining low mood and impairment, starting with the central importance of the interpretation of health-relevant events, information and/or stimuli as particularly negative (including a sense of threat or loss). Here, we will apply cognitive-behavioural conceptualisation to MUS/LTC.

These MUS/LTC models need to be empirically grounded and to incorporate factors identified as important in generating and maintaining low mood, anxiety, and impairment (both in terms of distress and behaviourally). Given that most models of treatment for which there is an evidence base are cognitive-behavioural and that these assume the interpretation and appraisal of health-relevant events, information and/or stimuli as particularly negative (including a sense of danger, threat or loss), this provides the focus of the present discussion. Typically, these appraisal factors are highly specific (c.f. cognitive theory of panic and health anxiety), as has already been demonstrated in research into the appraisal of symptoms specific to CFS, IBS and MS, *inter alia*.

Key Transdiagnostic Factors That Can Be Involved in the Maintenance of Psychological Distress and Disability in MUS

Although the key appraisals and interpretations are idiosyncratic and typically will be identified on a case-by-case basis as part of assessment, formulation and shared understanding, the types most likely to be seen are drawn from a relatively narrow range of domains, and can include catastrophising, mental defeat (conceptualised as

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'social role' catastrophising) especially as linked to fear of progression, or reinjury, or harm in the event of failing to engage in safety-seeking behaviours or avoidance. (Fear of death and dying will also be an issue for some, sometimes tied up with metaphysical or spiritual concerns.) The impact of such appraisals can be magnified by other tendencies, which can be expressed as 'thinking errors', including but not confined to 'all or nothing thinking'. It is unclear to what extent these are general or specific, but this probably does not matter in terms of treatment. In most instances it will be possible to identify a vicious circle of avoidance of activity and safety seeking, erratic patterns of activity, cognitive changes, and physiological changes that are involved in the maintenance of negative symptom perception in terms of catastrophising of what is currently happening, the belief that the original infection or injury is still causing the problems, and fears about the future course of the person's illness.

Interpretations and appraisals thus remain key, and drive or motivate some or several categories of largely transdiagnostic maintaining processes that keep the problematic beliefs in place. In turn, these maintaining processes can and do worsen the negative interpretations and may affect physical as well as psychological functioning. Broadly, these maintaining processes, which need to be identified and dealt with in treatment, have the effect of forming feedback processes ('vicious circles') and include both generalised and more specific factors, although this distinction is at best crude as applied here.

Specific Factors

1. Mood changes, particularly anxiety and depression, contributing to mood-appraisal spirals; linked to this may, in some instances, be negative beliefs about emotions.
2. Attentional processes (both automatic and strategic); these can increase perceived severity and pervasiveness of sensations and symptoms (amplification, 'looking for trouble') and acuity, with the affected person becoming more accurate at identifying sensations and changes in these, with the net effect of an apparent increase in sensations both acutely and chronically.
3. Emotional avoidance and/or suppression, particularly linked to anticipated emotional responses and unhelpful beliefs about those emotions; at its most extreme, this can amount to 'denial' in the sense of the person temporarily 'blotting out' illness ideas, but with regular intrusions and unease as a consequence.
4. Safety-seeking behaviours, including (but not confined to) checking (self and information, e.g. internet), avoidance of physical activity or situations, and excessive reassurance seeking, all of which tend to increase preoccupation and lead to exaggerated concern (e.g., 'If I hadn't sat down I would have collapsed').
5. All or nothing ('boom or bust') behaviour, with the alternation between attempts to undertake more than the person is physically or psychologically capable of at that particular time, and with the experience of symptom surges (e.g., fatigue, pain) on or after stopping, leading to more negative appraisal.
6. Generalised withdrawal not only from physical activity but from role-related activity, such as relationships, work, hobbies, resulting in impaired mood, general disengagement from rewarding activities, and problems arising from 'disuse'.
7. Rumination, both as a form of catastrophising and as worry, preparing for the worst, as self-protective 'problem solving' and so on, priming negative ideas and increasing preoccupation.

8. Autonomic arousal, including panic-type (imminent threat) and health anxiety (delayed threat) increasing other factors and directly feeding negative appraisals.
9. Alterations in other physiological factors; in LTC and to an unknown degree in MUS, including but not confined to pathophysiological changes. Working with the latter will require specialist knowledge. Other transdiagnostic factors likely to have an impact are sleep and circadian rhythm changes; these may increase sensitivity both physically and emotionally, serving a further amplification function, and so on.
10. Disuse issues and deconditioning especially in CFS, pain-related problems and those conditions associated with fear or avoidance patterns with respect to exercise, such as heart disease and COPD. Somewhat related are more specific factors such as bowel dysregulation. All are likely to have implications for changes in the course of treatment.
11. Although MUS are medically unexplained, there are a range of observations from physically focused research that may account for some of what is occurring, either from interacting with or independent of psychological processes. By definition these issues are poorly understood, but can be incorporated into formulation. For example, the impact of cortisol may at times be worth considering in terms of problems such as CFS, pain pathways, and so on.
12. Imagery and intrusive memories, increasing negative appraisals and affecting mood disturbance.
13. Interpersonal changes linked to a sense of unfairness, bitterness, mental defeat, eliciting negative or unhelpful responses from those around the affected person, including over-solicitous behaviour.

Generalised Factors

It is also important to recognise a number of generalised vulnerability factors and mechanisms that can lead to vulnerability to the above maintaining factors and may at times actually mediate them; the extent to which they are present varies somewhat across conditions. These are:

1. Clinical negative perfectionism, especially unrelentingly high personal standards and concern about mistakes (social and non-social).
2. Generalised beliefs both in terms of 'conditional assumptions' (often also linked to perfectionism) and unconditional assumptions, sometimes referred to as 'core beliefs'.
3. Problems with psychological inflexibility, which results in the person being 'stuck' in a particular view of what is happening to them (especially in terms of their illness); this is almost by definition a key aspect of the experience of mental health problems linked to MUS and long-term physical conditions (LTC). Such inflexibility will have the effect of limiting the person's repertoire both in terms of the accessibility of alternative, less negative understandings of their situation and their capacity for engaging in problem solving and therefore limiting their behavioural repertoire. Key to treatment is increasing flexibility so the person has more options open to them in all of these domains.

In [Figure 1](#), for MUS, the usual trigger ('Events and Situations') is most likely to be the perception of a bodily variation, such as feeling fatigued, pain, stomach churning, and so on. These may be normal variations or arise from some physical abnormality; it is

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not necessary in terms of formulating to distinguish these, although to do so according to the maintaining factors identified above will sometimes be valuable and helpful. It is seldom possible, at least early on in assessment, to identify precisely why this is negatively interpreted, and this usually does not matter unless it is felt appropriate to focus on the general maintaining factors discussed above. Sometimes the source of misinterpretation is more transient (e.g., arising from events in the patient's social network or from the mass media), or more enduring but specific (e.g., arising from previous experience of physical ill-health in themselves and/or in their families, and previous experience of unsatisfactory medical management in themselves or others). Sometimes there may be obvious assumptions that make the person vulnerable to such appraisals, such as the belief that 'bodily changes are usually a sign of serious disease, because every symptom has to have an identifiable physical cause'. Such beliefs may also relate to the perception of specific personal weaknesses and particular illnesses; for example, 'There's heart trouble in the family', 'I've had weak lungs since I was a baby'. Such beliefs may be a constant source of anxiety and/or may be activated in vulnerable individuals by critical incidents. Assumptions can also lead the patient to selectively attend to information that appears to confirm the idea of having an illness, and to selectively ignore or discount evidence indicating good health. Thus, particular assumptions often lead to a confirmatory bias in the patient's thinking once a critical incident has resulted in the misinterpretation of bodily symptoms and signs as being indications of serious illness. Further bodily sensations are noticed as a consequence of increased vigilance arising from the appraisal; this forms a feedback loop. Selective attention to illness-related information, such as the perception of normal bodily changes (e.g., gastric distension after eating) or previously unnoticed bodily features (e.g., blotchy complexion) is often important. Focusing prompted by worries about health brings slight bodily variations to awareness at times when ideas about illness are already present, leading to a bias towards noticing information that is consistent with the worries about illness, and with any pre-existing confirmatory bias.

In patients who become particularly anxious about their health, such situations are associated with thoughts that represent personally catastrophic interpretations of the bodily sensations or signs. Note that if the symptoms that are misinterpreted are those which occur as part of anxiety-induced autonomic arousal and the interpretation is that the symptoms are the signs of immediate catastrophe (e.g., 'These palpitations mean that I am having a heart attack right now'), a further immediate increase in symptoms will result, resulting in a panic-type reaction and, as anxiety worsens, the feared sensations apparently confirming the catastrophising. In any case, anxiety about health and symptoms themselves is likely to result in physiological arousal. Patients often misinterpret increased autonomic symptoms as further evidence of a physical disease.

Having made a negative appraisal, there is a simple 'mood appraisal spiral' effect; the person who thinks negatively experiences strong negative emotions; these strong negative emotions serve to strengthen the negative thinking, worsening the negative emotions in ways familiar from depression and generalised anxiety disorder (GAD).

There is a further potential negative effect arising from the emotional response; the experience of negative mood can act as a powerful trigger for past memory, including but not confined to traumatic memories. These memories can directly increase the accessibility of negative thinking and/or provoke further rumination, probably including preoccupation with issues such as 'mental defeat', where the person believes themselves to be undermined as a socially functioning and respected person.

Having made a negative illness or disability-related appraisal, most patients then react behaviourally. Such reactions can take several forms: either unhelpful safety-seeking behaviour, intended to avoid, check for or totally exclude physical illnesses; or attempts to ameliorate the symptoms and their consequences through withdrawal from activities perceived as provoking symptoms. Examples can include avoiding physical exertion, avoiding reminders of disease, seeking reassurance directly from medics or through internet searches, frequent medical consultations, bodily checking, manipulation of areas of the body and repeated inspection. Behaviour occurring as a consequence of perception of threat or harm can further increase negative emotions reactions in a variety of ways. It can keep attention focused on health worries and therefore result in elaboration of those concerns. It can increase the range and scope of catastrophic interpretations through repeated rumination. Reassurance as provided by others can also increase the scope of worries; for example, the patient who is concerned that his headaches indicate high blood pressure can be misunderstood by his doctor, who tells him that ‘Your headaches cannot be the sign of a brain tumour; if they were, you would notice dizziness, and would lose your sense of smell.’ Other examples include a patient who began to check his physical fitness and found that he was more out of breath than a colleague after climbing some stairs, which he interpreted as a sign that there was something wrong with his lungs. Another patient who checked his throat by repeatedly swallowing to ensure that it was functioning properly became convinced that the difficulty he noticed in repeated swallowing meant that he had throat cancer.

In many MUS, the behaviours seen are more about managing symptom intensity; for example, withdrawing from normal physical and social activities because of fatigue or pain, or the perceived risk of consequences of persisting, such as having a bowel accident or a heart attack. Such withdrawal then means that the person has fewer positive experiences, and may also serve to prevent the person from discovering that the things they fear will not happen. It can also lead to a ‘boom as bust’ pattern, as described above.

Note that the formulation ‘template’ depicted in [Figure 1](#) can and should incorporate additional elements, including those set out above, as specific and general maintaining factors. Also, links across maintaining factors may be present; for example, the link between negative interpretations and perceptions of physical symptoms can be variously mediated by a panic type link, with anxiety directly generating symptoms, behaviours where a slower escalation would be involved, selective attention, and increased sensitivity and so on. Additionally, other links between elements are likely to operate in specific instances. The template forms an empirically based starting point that can be developed on a semi-idiographic basis with individual patients as assessment and treatment itself progresses. It can also vary in complexity, from that depicted in [Figure 1](#) both upwards and downwards. In some instances, a single vicious circle may be involved, although this would be rare.

Transdiagnostic Treatment: A Brief Overview, Stage By Stage

To those already working with formulation-based CBT, particularly with health anxiety and related problems, treatment principles will be familiar.

1. The overriding principle is that therapy aims to help the patient identify what the problem is rather than to reassure the patient or convince them that ‘nothing

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- is wrong'. In both MUS and LTC, physical issues can and should be incorporated into the formulation as a key factor linked directly to the meanings identified.
2. Acknowledge that patients' symptoms by definition really exist, and that adopting a psychological approach does not imply in any sense that symptoms are 'imaginary'. Treatment aims to discover a satisfactory explanation for the perceived symptoms and more helpful ways of responding to them. This may involve psychological factors in the same way as, for example, tension headaches or a racing heart under stress.
 3. Reassurance is part of the problem, not a solution to it. However tempting, giving irrelevant or repetitive information will not help these patients. By definition, they have already had too much, and it is likely that attempts to reassure will worsen rather than help their problems.
 4. Treatment sessions should never become argumentative; the use of questioning as guided discovery is the preferred style, as in cognitive therapy in general.
 5. Patients' beliefs are invariably based on evidence that they find convincing; rather than discounting a belief, discover the observations that the patient believes to be evidence of illness and then work collaboratively with the patient on that basis.
 6. Treatment is explicitly time limited on the basis of an agreed contract of therapy intended to fulfil the therapist's requirements, while respecting the patient's worries about the possible consequences of not pursuing medical treatment.
 7. The selective attention and sensitivity to bodily variations typical of many of these patients can be used to demonstrate the way in which anxiety can arise from innocuous circumstances, symptoms and information. This means that within-session shifts in affect and symptoms are as important or more important than in other problems. For example, the fact that bringing to mind a threat-related image induced some of the symptoms that are normally interpreted as a sign of cancer is an important demonstration of the validity of the psychological formulation.
 8. What the patients have understood about what has been said during the treatment sessions must always be checked by asking them to summarise what has been said and its implications for them. The importance of this lies in the very real likelihood that patients anxious about their health will misinterpret information discussed within the therapy session. The use of audio recordings of the session for the patients' use helps in this respect, but within- and end-of-session summaries are also crucial. Where misinterpretation has occurred (as indicated by the summary), then this is another opportunity to provide validation for the alternative explanation, by discussing the occurrence of misinterpretations within the therapy session.

Treatment: Stages of Understanding and Change

The central components and stages of engagement in assessment — assessment itself leading to formulation, engagement in treatment, and actual treatment — are very similar to those used in common mental health problems, albeit with more explicit attention to engagement issues and with some components of treatment strategies varying according to the particular symptom configuration experienced by the patient and any physical issues at work. That is, some of the specific discussion techniques and behavioural experiments required for chronic fatigue as opposed to, say, irritable bowel problems, may vary considerably (although the principles are usually the same). The most substantial variations will tend to come where the predominant emotion

is anxiety, as opposed to depression. Similarly, in assessment, some understanding of the issues experienced by those with a different pattern of symptoms is needed. This is why the treatment is described as a hybrid of transdiagnostic and specific components.

Whether formally or informally, the first stage is screening, problem identification, and determination of treatment appropriateness or suitability, often linked to a general clinical assessment. This may be carried out by physical health care staff or those involved in offering psychological treatment, according to the setting. At this point, where possible, screening tools, general measures, and assessment-specific measures should be used; these can and should be used to track progress throughout treatment; see [Table 1](#) for a summary of our preferred assessment tools. The first section includes the more general assessments that should be used transdiagnostically, the second those where a particular symptom is present. Note that the table also includes measures that can be used to tap into key maintaining factors as well as specific symptoms. In addition to the importance of monitoring treatment, these more specific measures allow identification of maintaining and tracking of such factors.

Treatment proper begins with a full CB assessment. Such an assessment involves the personal history, development of the problem, and present pattern of symptoms. Fuller engagement takes place at this stage and is crucial as a two-way process; that is, the therapist getting to know the patient and helping the patient to get to know the therapist. In a real sense, the assessment is a two-way process, with the more important assessment (in terms of engagement) being that of the therapist by the patient! Following this relatively general process, a more focused assessment is used to develop a CB formulation that includes both etiological and maintaining factors, with the initial primary focus being on how the person interprets and appraises their experience of illness-related phenomena. This phase may also include liaison with GPs and other medical staff, as appropriate, given the patient's diagnosis and symptoms. The development of a formulation is crucial because the principal aim of treatment is to provide the patient with an explanation of their current experience based on their account of their experience as offered during this assessment, with the end result being an explicitly collaborative model of how psychological factors may contribute to the person's problem and interact with physical factors, where present. These should, of course, be incorporated into the formulation itself. This collaborative approach contrasts sharply with the all too common practice of trying to deal with the patient's worries by offering bland reassurance, which depends on trying to convince the patient that they are not suffering from the illnesses that they fear. Arriving at a formulation of MUS symptoms can be expected to take between one and two sessions.

Because it is the fundamental basis of treatment, the formulation is revised and adapted frequently throughout the treatment period and is always extended to cover new information that emerges. Once it has been shared, the therapist can progress to the next stage.

Discussion techniques and behavioural experiments refer constantly to this formulation as an alternative explanation. The patient is thus helped to make sense of their symptoms from a psychological perspective by a combination of: (1) self-monitoring of symptoms, their precipitants, behaviour, thoughts and emotional responses; (2) detailed discussion aimed at helping the patient attribute feared symptoms more accurately; (3) behavioural experiments that provide the patient with further and especially convincing evidence of the non-threatening and/or counter-productive nature of their problems, linked to the shared understanding. As therapy progresses, discussion and behavioural experiments are increasingly used to challenge problematic assumptions

TABLE 1

Preferred Assessment Tools for Medically Unexplained Symptoms

Primary measure	Instrument	Description
Transdiagnostic measures		
Physical symptoms	Medically unexplained symptoms checklist (MUSC)	MUSC is a new self-report measure for MUS developed by members of our group. It measures seven different types of physical symptoms that seriously interfere with daily life.
Depressive symptoms	Patient health questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001)	PHQ-9 is nine-item self-report scale that measures depressive symptoms over a 2-week period prior to answering.
Anxiety symptoms	General Anxiety Disorder – 7 (GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006)	GAD-7 is a seven-item self-report scale that screens for and assesses the severity of anxiety symptoms 2 weeks prior to answering.
Health anxiety	Short Health Anxiety Inventory (SHAI; Salkovskis, Rimes, Warwick, & Clark., 2002)	SHAI is an 18-item version of the Health Anxiety Inventory that measures health related anxiety.
Disability	The work and social adjustment scale (WSAS; Mundt, Marks, Shear, & Greist, 2002)	WSAS is a five-item self-report scale that measures impaired functioning in everyday activities.
Symptom specific measures		
Sleep problems	Insomnia Severity Index (ISI; Bastien, Vallières, & Morin, 2001)	ISI is a seven-item self-report scale that measures sleep onset and sleep maintenance difficulties, dissatisfaction with sleep patterns, interference with daily functioning and degree of stress caused by the problem.
Pain problems	Brief Pain Inventory (BPI; Tan, Jensen, Thornby, & Shanti, 2004)	BPI is an 11-item self-report scale with 4 items that measure pain severity and seven items that measure pain interference with daily activities.
Fatigue and related problems	Chalder Fatigue Scale (Chalder et al., 1993)	The CFS is a 14-item self-report scale that measures physical and mental fatigue.
Gastro-intestinal problems	Irritable Bowel Syndrome Severity Scoring System (IBS-SSS; Francis, Morris, & Whorwell, 1997)	IBS-SSS contains four items that specifically address IBS symptom severity. These items measure problems with abdominal pain, distension, bowel habits and interference of symptoms with daily life.
Heart and chest symptoms	Non-Cardiac Chest Pain Scale (Marks, Chambers, Russell, & Hunter, 2014)	This measure uses a frequency rating then eight 1–10 ratings of severity, interference and beliefs about chest pain

TABLE 1

(Continued.)

Primary measure	Instrument	Description
Dizziness and related problems	A range of measures have been used; no current consensus	
Gynaecological problems	Symptom diaries are typically used	
Process measures		
Mental defeat	Emotional reactions to difficult circumstances (Tang, Goodchild, Hester, & Salkovskis, 2010).	The instrument is 24-item, self-report scale that measures mental defeat related to physical symptoms. The scale is a generic version of the Pain Self-Perception Scale.
Catastrophic thinking	Physical Symptoms Catastrophising Scale (PSCS)	The PSCS is a new 19-item scale developed by our group to measure catastrophic thinking in relation to physical symptoms.
Rumination	The Rumination Response Scale (RRS; Nolen-Hoeksema & Morrow, 1991)	The RRS is a 22-item scale that measures depression related rumination. With slight alterations the scale can be adjusted for measuring rumination in the context of physical symptoms.

about symptoms, illness, and health. Behavioural experiments may also focus on helping the person clarify issues around specific physiological factors, such as the development of disuse problems and how these might be overcome, the impact of sleep disturbance, problems with 'boom and bust', and so on. Where possible, specific reattribution of sensations and symptoms is undertaken, including discussion strategies and behavioural experiments intended to positively increase belief in psychological components of the formulation. Where appropriate, discrimination between physical and psychological components of sensations or symptoms (and their interaction) will be helpful. Note that this will often require specific knowledge on the part of the therapist.

In many instances, therapy goes on to refocus on more general assumptions or other psychological factors (e.g., perfectionism) that make the patient vulnerable to cognitive distortions. The patient's attention is drawn to the rather more complex nature of their concerns, described in the preceding section (i.e., probability, cost, coping ability, and rescue factors), and therapy may be explicitly directed at the last three as well as the first. Issues such as the basis of the person's self-esteem are tackled in this last stage. Attitude change includes dealing with attitudes concerning health, illness, and the medical profession, as well as challenging beliefs about 'awfulness', coping, rescue factors, and 'superstitious' attitudes and beliefs. Work on perfectionism and cognitive styles such as catastrophising, black-and-white thinking ('all or nothing') may also be relevant where these issues are present. Where relevant, specific attention to excessive medical consultation issues is also appropriate.

Although this may have featured to some degree throughout, more specific strategies related to the particular diagnoses may be deployed once the formulation is in place.

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The Anxiety of the Clinician

When working with a patient who experiences physical sensations and bodily variations that are ‘medically unexplained’, clinicians are understandably prone to experiencing doubts and concerns. What if this really is what the patient fears it to be? What if I am missing a dangerous medical condition? Such concerns on the part of both physicians and psychological therapists require attention. Note that the presence of psychological factors is not simply deduced from the absence of a medical diagnosis to explain the person’s symptoms or the extent of their disability, but rather from the use of strategies of assessment-based formulation that lead to a shared understanding of how psychological processes interact with the experience of physical sensations and bodily variations.

Over and above the strategy of clearly identifying psychological factors and how they operate in the individual, it is still not uncommon for the professionals involved (including the CB therapist) to have doubts and fears about the possible physical basis of the symptoms reported. There is a simple ‘rule of thumb’ that should be applied when such doubts arise, and that can be shared by the therapist with the physicians involved in the care of such patients and the patients themselves. Both health care professionals and the patient usually find the application of this rule useful (and reassuring!). When concerns arise, the therapist and/or doctor is asked to consider the clinical picture presented as a whole, including the patient’s history, the nature of the symptoms, the history (and timing) of previous physical investigations, the symptoms themselves, and so on. The clinician then asks themselves: If this were a different patient with an identical clinical presentation and history (such as an identical twin), but who was not as obviously anxious about his health, what would I do? The answer to that question should determine what is done in the particular case and should be discussed with the patient in that way. Thus, any decisions regarding the need for further medical investigation is taken on the basis of the relevant clinical information and is not influenced by the presence of anxiety. Applying this rule (and communicating it to other professionals such as family doctor) should mean that the patient is neither over-investigated nor under-investigated, and deals with a fear often expressed by patients, the ‘cry wolf’ problem. Quite early in therapy, patients often express the worry that any real ailment would not be taken sufficiently seriously. If they understand the ‘rule’ described here, then this goes some way towards dealing with these fears.

This could, of course, be taken as meaning that such an approach would apply only in those who are physically healthy. We argue here that this is not so, and indeed our most recent trial of health anxiety treatment was conducted in those being seen in a general hospital setting and screening positive for health anxiety (Tyrer et al., 2014). Where a co-existing physical condition is present, then this is incorporated into the formulation. However, we suggest here that it is possible to go further than this, and offer psychological treatment where the main focus is a primary physical illness.

Long-Term Conditions

MUS can also be linked to another major clinical problem, the experience of psychological distress associated with chronic LTC. It seems clear that, in both instances, psychological aspects are crucial in terms of the extent to which those affected perceive themselves as disabled and experiencing poor quality of life related to their

experience and interpretation of symptoms, but the application of psychiatric diagnoses are unlikely to be helpful and may indeed be counterproductive.

We therefore consider it likely that better understanding and treatment of MUS is likely to be capable of generalisation to LTC, and we have already begun to apply some of the same principles (Hayter et al., 2016). We have demonstrated that in people with a diagnosis of relapsing and remitting multiple sclerosis (RRMS), the extent of perceived disability and impairment of quality of life is very substantially affected by the presence or absence of health anxiety. Put simply, those with high health anxiety with no detectable impairment of cognitive and physical function consider themselves to be more impaired than those with lower levels of health anxiety, who in turn are almost identical in terms of their perceptions to the community comparison group. If, as is possible, health anxiety is to some extent driving distress and disability experienced, then it is possible that treatment that seeks to reduce such anxiety may be helpful. This study has been replicated and, in a consecutive single case series, health anxiety was substantially reduced in four out of five patients with RRMS (Carrigan et al., 2016). We have since sought to replicate this work in patients with Parkinson's disease, where both cognitive and physical impairment was evident, obtaining similar results in terms of the perception of cognitive impairment (Fixter et al., 2016). Interestingly, all participants *underestimated* the extent of their physical impairment (in a walking task). This suggests that, as in MUS, it may be most appropriate to use a hybrid transdiagnostic/specific approach to treatment, with adaptations according to the specific LTC involved. There are already a number of studies on providing CBT based psychological help and support to people with specific LTC, indicating that the rationale used for the development of this type of treatment in MUS may generalise well.

Conclusion

We have argued that the development of transdiagnostic and specific approaches to CBT have reached the point where it is possible to develop and implement a hybrid approach that should optimise outcomes while minimising the additional training and supervision burden. The development of such an approach in MUS has been progressed and is now being piloted, and there are exciting opportunities in terms of future developments for LTC. Quite apart from the likely benefits to patients experiencing disability and distress linked to such problems, there are good reasons to believe that developing this approach as part of stepped care with relatively non-specialist therapists would more than pay for itself.

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