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REVIEW

The 4D Model: Rehabilitating Unrealistic Medicine

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Abstract

Managing the symptoms of long-term conditions presents a challenge to patients, clinicians and health systems worldwide. In seeking to explain such symptoms, diagnostic models tend to be 2D, and hence unrealistic if reliant narrowly on just *Disease* processes or *Drug* effects. Here, I argue that symptoms which appear refractory to pills or procedures can nonetheless be rehabilitated, if a 2D *prognostic* model is used in addition. *Distress* and *Discouragement* are reproducible syndromes defined as arising from prognostic fears for the proper function and integrity of *body* and *self*, respectively. Often, these attract just symptomatic treatment, being medicated as anxiety and depression and/or diverted toward talking therapies. But, when managed in isolation, this is just another unrealistic 2D model, analogous to divorcing nausea from chemotherapy or thromboprophylaxis from surgery. Instead, with changes to our clinical manner, a more realistic medicine can diagnose, for each person, how specific elements from their diagnostic model (*Disease*, *Drugs*) drive complications in their prognostic one (*Distress*, *Discouragement*). Rather than perpetuate a succession of 2D appointments, a holistic dialogue using the 4D model helps patients to formulate how their symptoms fit together. This can support them to soothe and triage their everyday symptom experience. Confidence with the 4D model can then help patients and clinicians advocate for treatments that are better targeted and integrated. This review facilitates clinical use of the 4D model, with example cases and lay explanations—plus its further theoretical development, using the fit with philosopher Elizabeth Barnes' latest accounts of health.

Key words: realistic medicine; long-term conditions; rehabilitation medicine; clinical consultation; medical ethics; medical humanities

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Introduction

What should clinicians do when a diagnosis provides prospect neither of cure nor of quick terminal illness, but rather periodic exacerbations or an uncertainly-timed progression? The latter categories, grouped as *long-term conditions*, include life-changing ones—such as neurological diagnoses like multiple sclerosis (MS), Parkinsons and Huntingtons; cardiorespiratory ones, such as angina, heart failure, and chronic obstructive pulmonary disease (COPD), and even oncological conditions, like certain breast and prostate cancers. Being long-term, conditions can also coincide (Langenberg et al, 2023). Years of symptoms may beckon, including pain, weakness, fatigue, altered mobility, cognitive impairment, tremor and breathlessness (Löwe et al, 2024). For each persistent symptom, there's temptation, clinic by clinic, to attribute them faithfully, even fatalistically, to the primary *Diagnoses* and/or *Drugs* used to treat them. Though commonplace, such 2D medicine can be unrealistic. Instead, symptoms often arise predictably, due to highly treatable accompaniments of the life-changing illness, defined here as *Distress* and *Discouragement*.

This review, in three parts, is intended for clinicians and patients grappling with situations where symptoms may go under-treated due to tight 2D focus on *Drug* therapy aimed at a primary *Diagnosis* and its physical complications. In part one, we flesh out the problem of *unrealistic medicine*. Here, stereotypical sufferings go under-recognized and/or over-medicated. In part two, I sketch out a rehabilitative approach to this common reality. To begin, we can reform our clinical manner, better to read suffering and adapt it for patient benefit. Next, we can revise our clinical model. The 4D approach frames persistent symptoms as arising from combinations of *Disease* processes, *Drug* effects, *Distress* and *Discouragement*. The latter two are included now as intrinsic features of life-changing illness. We'll consider them later in some detail, but they can be defined briefly as follows. *Distress* encompasses the embodied emotions (e.g., anxiety, anger) that accompany acute fears for our body and survival. *Discouragement* comprises the social emotions (e.g., guilt, shame) that accompany fears for our moral standing. Their inclusion in the 4D model allows for a more realistic approach to suffering. This wider formulation helps us address the significant symptoms that characterise life-changing illness, by extending treatment beyond pills and procedures to our ethics and humanities (Bleakley, 2023). In part three, I consider the basis for the model. Philosopher Elizabeth Barnes' new accounts of health and illness mark out the vital importance of both our embodied and ethical woes (Barnes, 2023). The 4D model captures these visceral accompaniments, helping practice with life-changing conditions feel more relevant and realistic.

Part One: Unrealistic Medicine

Our Problem With Suffering

Suffering is an inescapable fact of sentient life. Adding self-consciousness, social life and our penchant for meaning permits forms of suffering that spread beyond the physical toward the psychosocial. At the same time, some suffering seems also useful, even necessary. After all, shielded from every suffering, we'd likely be left incompetent and insufferable (Bain et al, 2019).

The WHO define universal health coverage (UHC) as comprising promotive, preventive, curative, rehabilitative and palliative health services (World Health Organisation, 2023). We'll say more on rehabilitation, but other branches are focused, in the main, on ways to dispense with suffering. In other words, healthcare professionals are primed to strive likewise.

This may underpin tendencies to diagnose and treat in a "fire and forget" manner, where imperatives to fix, and conclude clinical episodes, eclipse an unfixed reality in need of thoughtful continuity of care. As with Amazon, healthcare's priority becomes delivery rather than content, moving boxes rather than dwelling on the suffering within. Focus on "fixing" and "delivery" may help explain the perplexity of health professionals, when their time comes, and they too open the box and meet their own inescapable suffering. Dr Richard Smith, formerly Editor of the British Medical Journal, described how the journal used to receive so many reflections from newly-diagnosed doctors that it stopped publishing them. It wasn't that their reflections didn't matter. More than being broadly similar, these reflections revealed that doctors often wished they'd practised differently (Smith, 2022). Kubler-Ross, who popularised the stages of grief, was similar, when interviewed after her strokes. Disgruntled, she dismissed her academic findings on grief and advised not to grow old past seventy (Mars-Jones, 2016). How is it that even those of us working at the coal-face of human suffering are often surprised when it collapses into our own life?

In part, this may arise from unrealistic approaches to suffering, wedded to Enlightenment thinking. Rationality and ingenuity are assumed our best means to reduce suffering. Certainly, our spending on biomedicine indicates ceaseless research on means to prevent, cure or cloak (palliate) it (Global Burden of Disease 2020 Health Financing Collaborator Network, 2021). But how then do we respect ideas stretching back beyond Medieval thought—where some suffering could be useful, even improving (Mowbray, 2012)? And what of suffering that persists despite our most innovative, rational efforts? For some of the health professions and the public, there may be irritated temptation to dismiss such ideas and suffering as irrational or unreal. Such sentiments indicate how battle lines can form over issues like mental health, chronic pain, long Covid, chronic fatigue and functional disorders. For others, horror and pity dictate suffering simply must be palliated. Here, pain management gives caution to other symptomatic long-term conditions. As hope of cure recedes, diagnostic chase yields to "symptomatic treatment". Then, patients and practitioners can lose track of what's being treated and why. Reliant on prescriptions, patients struggle to fathom why they're sent to psychology for symptoms still medicated as physical. Sick notes flow, with costs to society from resulting inactivity and discouragement (Löwe et al, 2024).

Rehabilitation as Response

Rehabilitation offers different. The WHO identify it as a key branch of healthcare, and summarise rehabilitation as looking to optimise function and independence in ways meaningful to the person (World Health Organisation, 2023; World Health Organisation, 2024). This precis merits fuller exposition. First, for all the talk of *optimisation*, rehabilitation often starts in some form of disaster, be it injury, illness or dread diagnosis. It begins as a practical response to the visceral realities of suffering. Second, in responding, rehabilitation targets what's being called the third marker of health, alongside mortality and morbidity: *human functioning* (Stucki and Bickenbach, 2017). Third, rehabilitation shifts emphasis within healthcare from *vulnerabilities* to *capabilities*, from can't to can (Chiappero-Martinetti et al, 2020).

These qualities are, however, no panacea. The urge toward evidence-based rehabilitation incentivises quantitative but generic assessments of function and capability. Goal-setting follows routinely, but on limited evidence of benefit (Levack et al, 2016). In part, this can arise because it's hard to quantify the gap between what people say they want and what they choose to do. The challenge persists, whether goal-setting or polling an electorate (Jennings and Wlezien, 2018). With the personal unfathomed, members of the multi-disciplinary team can retreat to process, using 2D models focused on scoring biophysical or psychosocial issues, without narrative insights linking both. For patients, this can mean successive evaluations, only to be retold what their symptoms are not, rather than are. Lacking a 4D synthesis, they want for a holistic understanding of what their symptoms *mean*.

Easily overlooked in WHO descriptions, *meaning* is fundamental to rehabilitation and human health. Biology abounds with mindless transmission of causal "biometric" information, but only in small domains has the evolution of sign-making allowed that to be perceived as "about" something and, in short, meaningful (Tomlinson, 2023). Though not alone, humans appear rare in this capacity—and it comes with costs. Meaning brings reflection "about" our morbidity, mortality and norms of functioning (Monso, 2024). Put bluntly, mindless repair can do for robots, but humans need rehabilitation. When ill or injured, we face threats to *body* and *self*, so rehabilitation should address both. Faced by persistent suffering, we need to consider not only *cure* and *care* (Stegenga, 2018a), but also what Scotland's Chief Medical Officer described as the *biometric* and *biographical* aspects of our health (Smith, 2023).

Part Two: Rehabilitating Medicine

Next, we'll consider how to go about this holistic (complex) task. In short, rehabilitation emerges as an ethical response to the call of persistent suffering (Critchley, 2007), one that treats the latter less as toxic waste to be walled off, but rather as raw material for redesign and rebuilding. Working with, rather than on people, rehabilitation can be to other branches of medicine, as architecture to engineering. A creative discipline, it can foster agency and self-compassion, prompting the development of *phronesis*, or practical wisdom (Rief et al, 2013). Viewed this way, rehabilitation accepts the reality of suffering, looking to learn from it, rather than just seeking its ablation.

Rehabilitating Diagnosis

We start with a shift in our clinical manner, reinforcing moves from dominion to dialogue, from giving "answers" to what Freire called *problem-posing education* (Freire, 1970). Dialogue exploits the brainpower of both patients and practitioners. Without this, each party can cling to inadequately informed pictures of reality, prone to "magical thinking" or fatalistic conviction that little can be done. Instead, boosted by an alliance of minds, clinical encounters can be creative and critical. As Freire puts it, such meetings can be "prophetic and hence hopeful" (Freire, 1970, p. 57), seeing resignation yield to transformation and enquiry. This shift, though central to rehabilitation, is not just for the injured and suffering. Rather, for Freire and Ingold alike, we're all incomplete and therefore continually engaged in the creative process of becoming (Ingold, 2021).

Seeing our work this way changes us. From distanced, rational examiners of suffering, we become “vulnerable observers” (Behar, 2022). We’re willing to accept that, where suffering persists, we needn’t flee the battlefield, trailing claims “nothing can be done” or “you need to see someone else”. We can act, in solidarity and as witnesses first, serving to verify the other’s experience and capturing it in the clinical record. How often otherwise, do we read clinical notes that look like a pre-mortem report. They describe a still-living body and its problems, rather than a person and their experience. Recording the patient’s suffering in their own words serves to enhance diagnostic accuracy. It also helps fathom what’s at stake for them, and what treatments they’ll consider. Listening is, therefore, a path toward clinical wisdom, as information is relentlessly gained. But it also stimulates an ethical response, one that’s visceral rather than detachedly rational (Critchley, 2007). It improves our expertise, and helps us to care.

Listening also forms the first rung of a ladder, said to be taught to hostage negotiators by the Federal Bureau of Investigation (FBI) (Koulopoulos, 2017). This can help clinicians too. After all, when frustrated at feeling unheard, and in terror of suffering more, patients and families can barricade themselves behind supposedly incomprehensible demands.

Listening helps us feel something of what they’re going through. This nurtures *empathy* and alters our demeanour. That’s detectable to patients who begin to trust we “get it”, at least in part. With that comes *rapport*, where we “get” one another, and here emerges the chance to *influence*. And it’s in that space where we find opportunity for *change*. Perhaps too often, clinical encounters start and end with instructions to change, with little attention to prerequisites outlined by the FBI.

When time is short, we can remind ourselves that for all the models of behaviour change that use variants of the crime writer’s staple (means, opportunity and motive) (Michie et al, 2011), the advertising industry realised long ago that change more often starts with *feelings* (McKevitt, 2018). In practice, this allows us to use a checklist, in case our clinical consultation looks like degenerating into a “telling” exercise. Just as we use *airway*, *breathing* and *circulation* for resuscitation, we can use *affect*, *beliefs* and *confidence* as an ABC of rehabilitation. If rehabilitation requires change, this comes through attention to feelings or *affect* first. Panic leaves little room to work on beliefs and confidence, so we need to detect and address such feelings first, if we’re not to waste time guiding people too terrified to hear us. Similarly, shame and guilt can leave little appetite to implement what might be better for our health. Both panic and shame can be witnessed in the body, respectively in glazed eyes and stricken breath, or tearful eyes and breath that embodies the word expiration. We’ll say more about *affect* later, but by addressing rather than skirting it, we can help resuscitate the rest of the consultation.

Symptoms are the currency of that consultation, with haggling over category and cause. Patients whose symptoms have too often felt dismissed or whose accounts go too often interrupted, can arrive in states of *Distress*, manifest as anxiety and/or anger. Letting them talk allows symptoms, but also evidence, to spill forth to help both them and their clinician. Otherwise, our temptation to intervene, control and classify can leave us with a lengthy “problem list” plus a slate of investigations promised for each. The patient's velocity within the system only rises as they are circulated through still more appointments. Waiting lists rise while satisfaction falls.

The listening alternative allows symptoms to pour out - but also the evidence to help clinicians triage and address them (please see **Supplementary material**). Detailed disclosures reveal patient fears and the biological, psychological and social factors each gives weight to, when looking to explain their experience. This shapes what they hope for from the consultation. Perhaps most importantly, few people, even when suffering greatly, paint a picture that's entirely bleak. Self-deprecation and gallows humour sustain many, meaning that as the torrential account of suffering slows, within that flow, items of encouragement start to surface. This can be, for example, an account of a dear friend whose story has been pivotal, or an activity that still brings pleasure of sorts. Values and personal ethics are also revealed.

So much for our clinical manner, but what do we do with the information patiently trawled? Where fulsome accounts from open questions have left particular doubts still in play, we'll need to augment our assessment with focused examination. The cornerstone is seasoned observation. This might easily allow, for example, the diagnosis of painful hands as more neuropathic than musculoskeletal, based on the patient's account and the way they manoeuvre their wheelchair into the clinic.

With this wealth of information, borne primarily of listening and looking, we can embark on diagnostic negotiations. This is a dialogue. We rehearse with the patient their key symptoms and explanations, while introducing our accounts alongside. On many issues we're likely agreeing, while on others we'd suggest evidence points in different direction. Here, it's helpful to offer their own evidence in support (please see **Supplementary material**).

Rehabilitating Our Model: The 4D View

The biopsychosocial paradigm (Engel, 1977) may not be the best option, when pursuing diagnostic negotiations. It can feel inaccessible to patients. Physicians tend to use it in compartmentalised fashion, focusing on the biological but neglecting or referring other elements to psychology or social work.

Instead, the 4D model gives clinicians and patients a pragmatic framework for diagnostic negotiations (please see Table 1). It considers that: (a) broadly speaking, symptoms stem from our *Diseases*, *Drug* treatments, *Distress* and *Discouragement* (henceforth, the 4D factors); (b) where the *Disease* is life-threatening or life-changing, *Distress* and *Discouragement* are integral and treatable parts of the symptom experience; (c) intractable symptoms increase the likelihood that more than one of the 4D factors is in play, while decreasing the likelihood that clinician and patient will agree on which and to what extent.

The model helps illuminate a common clinical pattern. Blinkered focus on *Disease* and *Drugs* can mean that symptomatic *Distress* and *Discouragement* get overlooked. As symptoms then persist, unwary clinicians can respond with unrealistic medicine. They needlessly chop and change drug treatments, mis-advising patients accordingly. When symptoms persist further, patients suffer frustration. They lose faith in the medical advice and repeated but unhelpful investigations. If

Table 1. The 4D model.

	Diagnosis	Treatment	Comment
Disease	Symptoms arise from pathophysiology.	Seeks to address pathophysiology.	Evidence-based options often quickly exhausted in long-term conditions.
Drugs	Symptoms arise from pharmacology and in particular pharmacodynamics.	Usually seeks to stop or change medication.	Medication changes and escalations often exhausted long-term.
Distress	Symptoms have anticipatory quality, often triggered by bodily fear relating to this or prior trauma. Exacerbated by other stressors. Relieved by distraction and understanding of what's driving symptom (rather than being repeatedly told what's been ruled out). More common with prior history of trauma, where prognosis uncertain, or where it's unclear if daily fluctuations are due to *Disease* and *Drugs* or else *Distress*. Comes with emotions like anxiety or anger, embodied with tachycardia, dysfunctional breathing, light headedness, a sense of dread. Can be substantially resolved by prompt recognition, relief breathing & grounding.	Defuse the physiology of *Distress* using breathing and grounding. Then seek to diagnose and treat specific misconceptions and fears for the body that drive experiences. Requires listening and looking rather than assuming. Aim to explain and normalise pathophysiology, i.e., how *Distress* drives symptoms and how defusing works.	Physiology of *Distress* (fight/flight/freeze) is common & well-recognised driver of symptoms but less often addressed specifically. Patients can be taught how to improve their triage of symptoms.
Discouragement	Symptoms have moral quality, coloured by social emotions like guilt, shame and blame. Related to fears for the self/one's identity. Often associated with tearfulness, and point when conversation moves to impact of person's condition on loved ones, on their status and purpose. Also attends patient accounts of feeling less believed by clinicians, relatives, friends, etc.	Provide solace, appreciating experience rather than seeking first to evaluate. Diagnose ethical claims vs self: whether consequentialist, virtue-based or deontological. Nurture encouraging alternative perspectives & claims made by self, family, friends that may be helpful & heeded. Ask person to act, e.g., seeking counsel from trusted others or journaling to record +ve and -ve analyses.	Also termed moral injury. Benefits from compassion and gentle ethical reasoning.

A summary for each of the domains (*Disease, Drugs, Distress and Discouragement*) alongside main symptoms arising and principal focus of treatment for each.

only then, at this late juncture, clinicians suggest a new and separate psychological cause for the refractory symptoms, patients may experience this now as dismissive, even mocking. This is a particular risk if they have experienced prior trauma and/or previous mis-diagnosis.

Including *Distress* and *Discouragement* from the outset, the 4D model allows their integration within diagnostic negotiations. They can be weighed alongside *Disease* and *Drugs*, rather than surfaced only as frustrated afterthought. We recognise that *Distress* and *Discouragement* are as integral to *Disease* experiences, as toxicity is to chemotherapy. This reminds us to be proactive in their amelioration, not least because of their wide effects, from wound-healing to immunology (Glaser and Kiecolt-Glaser, 2005).

Distress—The Suffering Body

The aim is a more realistic, inclusive approach to human symptomatology. We seek to enhance diagnostic efficiency and accuracy, by asking how each of the 4Ds is contributing to the physiology experienced and observed. Bouts of *Distress* are recognised as natural responses to bodily threat, most often posed by the first two Ds. At thought of them, we fear suffering and destruction. The physiology of *Distress* becomes highly material. Optimal treatment requires diagnosis of instigating fears in their often visceral, graphic detail. These are commonly rooted in phrases, images or other sensations embedded, like shrapnel, during acute care. Debridement requires precise assessment of the psychological wound, seen in context, because earlier life trauma may be prominent. Treating embedded fragments requires we address particular fears about suffering and *prognosis*, and rework alarming thoughts and images, toward metaphors more hopeful and memorable (Kwok et al, 2022).

Hope (Obama, 2007) and *fear* (Wehner, 2024) are key emotions in politics. In clinic, we need to see fear doesn't drive avoidance of healthcare. Our skill can be in soothing this, but also in supplying temperate hope. Most often, that's begun by improving patient understanding of their everyday. Where they risk attributing every problem to progress of their condition, we can highlight that day-to-day fluctuations in long-term conditions can often be about "match confidence". When MS makes walking cognitively taxing—less pedestrian, more like mountaineering—it's unsurprising that people experience fluctuations in form. These are less about minute-to-minute demyelinations, more like the ebb and flow of human performance we see in players having to "bring their A game", set to set in tennis. Similarly, we get nervous at match point. Mind and muscles tighten meaning it's unsurprising if dips in function attend emotive occasions like weddings. Coaching on these human factors can foster agency and coping.

As for high-stakes sports, we aim to soothe the *physiology* of *Distress*. We set out its roots—in illness and fears of our destruction—and why techniques like *breathing* and *grounding* are relevant. Writers have long recognised how *Distress* can provoke a "sharp intake of breath". This physiology feels "breathtaking" as our breathing quickens. Escalating sets of under-opposed inhalations, leave us feeling unable to breathe, further exacerbating *Distress.* Increasingly light headed, heart and mind race.

Our natural antidote is to vent a *sigh of relief.* This mimics the physiology of relief experienced by children—when whimpering builds and builds, giving way to much freer sobbing. We can practice the sigh together, showing back to the person ways their technique works, plus areas for improvement. Often, they don't give themselves fully to a relieving out-breath. Instead, they hold on to bodily tension and, without relaxed pause, snatch at the next breath. This is visible, particularly in darting eyes and drawn mouth. Practising in front of a mirror allows people to see for themselves, noticing how their mouth holds tension—as if playing the flute. Others force expiration, like doing a peak flow. Practice allows relief breathing to become second nature rather than second thought. Anchoring this to habits like toothbrushing, can help *sighs of relief* become routine. We advise, also, for this to be deployed early, as soon as unease, that prodrome of *Distress*, first appears in feeling and physiology. Though relief breathing might sound easy or trivial, experience shows it's neither (Bentley et al, 2023).

Ritual and tactility are further ways to soothe the physiology of *Distress*, with historic methods including prayer beads, knitting or crochet (Xygalatas, 2022). Modern versions include the tics and stereotypical movements made by elite players before penalty or conversion kicks, or when batting or serving. Techniques for *grounding* can be taught as means to similar ends. When *Distress* threatens to launch our brain, like a kite, into future fears and past regrets, grounding seeks to reel it back in. It aims to anchor us in the embodied here and now, via closer attention to the inputs from our five main senses. For example, we can notice the grain in wooden furniture or the texture of clothing fabric. Alternatively, we can mimic Edvard Munch's *The Scream.* Touching fingers to face can exploit rich somatosensory representation of both, to drown out unhelpful nerve signals from other parts. Once again, experience shows such techniques promote the physiology of relief, but are easier said than done (Melton et al, 2020).

Normalisation helps. Breathing and grounding are framed as natural antidotes, rather than esoteric and "new age". We socialise them by reference to "people in this situation often experience…/find benefit from…". Similarly, we can remind that *Distress* is part of our shared humanity—ubiquitous and used by Spielberg in "Jaws". Like symptomatic patients, audience fears about the shark are escalated via serial attacks and false alarms, leaving cinema-goers struggling to fathom one from other. Highlighting such parallels helps people feel included and similar, rather than weird and alone.

We can also discuss other impacts of *Distress*. Viewed as a disabling of our normal *poesis*, it turns our creative and forward-looking imagination inward and backward. Healthy imagination falls prey to darker thoughts, stuck in surfeit of interoception and retrospection. Symptom burden and regret increase, even as bandwith to imagine our future falters.

Discouragement—The Suffering Self

This leads to *Discouragement*. If *Distress* is our embodied response to threats to our *surviving*, *Discouragement* attends social threats to our *thriving*. Rather than the visceral emotions experienced with *Distress*, *Discouragement* encompasses those social emotions like shame, guilt and blame. If *Distress* is a disabling of our imaginative or poetic functioning, *Discouragement* is a disability affecting our ethical functioning. In particular, much *Discouragement* stems from normative judgments made against ourself and others. We blame one or both, whether for a broken biography or feeling burdensome and beholden. A related term, one more freely applied to clinicians and combatants, is *moral injury*: a sense of fault whose locus can oscillate between self and the systemic (Jones, 2020). In clinic, quite simply, it's where the tears start. Uneasy, clinicians can look to change the subject. But brief encouragements of the "chin up" variety risk missing heartfelt disclosures that are just about on the patient's lips. Steeling ourselves to listen further allows us to learn more and become more useful.

Medical ethics has been part of university curricula for decades. But the focus has tended to be on how doctors rationalise difficult decisions and latterly how they should conduct themselves in relation to patients and peers. Here, I suggest ethical skills are also required to help discouraged patients address normative claims made against the self in context of life-changing illness. If this feels surprising, it's worth reflecting on the importance of *Discouragement*, and its ethical sense, in popular culture. For example, there's the lyrical regret in the Beatles' classic *Yesterday*:

I'm not half the man I used to be
There's a shadow hanging over me

At present, our clinical response to *Discouragement* tends to brand it as depression and treat it with medication, counselling and social prescribing. Alongside or instead, we could aim at more precision, identifying the words and images that illness stirs to the surface and which then shake our morale. Poet and philosopher, Denise Riley puts it thus (Riley, 2005):

> *The worst words revivify themselves within us, vampirically. Injurious speech echoes relentlessly, years after the occasion of its utterance, in the mind of the one at whom it was aimed.*

Recognising how illness opens the vault, allowing harmful ideas to wander, we can begin to respond. Imagining more helpful vistas and normative claims, we nurture kinder thoughts about self and others, rather like compassion-focused therapy (Gilbert, 2014). Alongside kindness, there sits a need to rebuild a sense of purpose, one that feels achievable within a new biography that's emerging post-diagnosis. This compassionate re-evaluation can be encapsulated by two poets (Martin, 1999). In *Anima Hominis,* Yeats' (echoed later by Heaney) writes:

We make out of the quarrel with others, rhetoric,
but of the quarrel with ourselves, poetry.

In *Song of Myself*, Whitman writes:

Do I contradict myself? Very well then, I contradict myself,
(I am large, I contain multitudes).

Treating *Discouragement*, then, involves defusing both quarrels, while accepting space for contradictions. For example, journaling can help, if one takes care to encourage not just personal reflection but also the inclusion of perspectives from supportive others. In so doing, we can often rebuild a more hopeful prognosis for the self, turned toward kinder word and purposeful deed.

Again, we can normalise, pointing to a common humanity exploited by directors like Capra in “It’s a Wonderful Life”. On Christmas Eve, George Bailey, hero and help to all, finds himself on a bridge about to throw himself off. Accidentally insolvent, he fears prosecution and disgrace. Clarence, a junior angel instructed to help, asks his senior if George is ill, only to be told it’s worse—he’s *discouraged*. In response, Clarence offers George a vision of what the latter’s pleading for—that he’d never been born. Together, they wander his hometown, viewed as if George and his good deeds had never existed. Seeing town and neighbours diminished and bleak, George tearfully rescinds his plea, returning home, to the love of his family and grateful community.

Like Clarence, we bear witness to the sometimes-devastating claims people make against themselves when ill and discouraged. We acknowledge the reality of those pleas and feelings, only later offering alternate visions and purposes. For example, the person may make a *consequentialist* claim against themselves. New disability prevents them earning as before, so they feel useless. Later, we can gently develop alternative claims from the theories of *deontology* or *virtue* ethics (please see Table 2). First, we listen out for their perhaps rare but more compassionate ideas, about self or from supportive others. Broader values are discerned, including purposes that might be seen more positively. The person may still be capable of performing valuable *duties*, such as those as part of a club; or showing *virtues* of courage and solidarity in speaking up for others. We watch for how these alternative claims are received, before imagining with the person, purposeful activities that might reinforce these alternate ethics—e.g., (i) planning time to catch up with club *duties*; (ii) volunteering to provide *dutiful* support for a charitable organisation; (iii) returning to work with reasonable adjustments, these framed as civil *rights*, not concessions for weakness; (iv) applying for benefits, recognising these as products of solidarity, a *virtue* they defended while still working.

Time as Another Dimension

The 4D term also reminds we need to see one another, beyond the 3D, biographically, in time. Denise Riley captures an uncanny feature of personal disaster in her title, “Time lived, without its flow” (Riley, 2019). With forward-looking imagination temporarily disabled, perhaps to protect initially from the full magnitude of loss, we’re less able to string events together, losing narrative powers and the flow of time. Amidst such bewilderment, but at the right moment, a humble timetable can help. We construct it, at first, to contain simple activities achievable even on our worst days. Copying tortoise rather than hare, we can run the plan for a couple of weeks, allowing us to look back on a “have done” list. Based in observed reality, this encourages. In contrast, “to do” lists can often be driven by anxiety, manifest as scribbled post-it notes on the fridge.

Table 2. Normative ethics.

	Summary	Comments	Proponents
Consequentialism	The right action is determined by the best outcome. Common ethic in clinical practice and in life, where people may see their worth in their outputs or earnings.	At best, the greatest good for the greatest number; at worst, the ends justify the means.	John Stuart Mill Jeremy Bentham
Deontology	The right action is determined by the relevant duties and rules that apply. Common ethic in medical regulation and also in life, where people hold to particular commandments or duties.	At best, rights and duties to protect and be respected; at worst, "I was only obeying orders".	Immanuel Kant
Virtue-based	The right action flows from the right actor. Character is what counts, with the virtuous character being central. Common ethic in medical regulation in terms of what's expected of a doctor, but also a common ethic in life, with, e.g., courage and kindness being valued virtues.	At best, an exemplary life and character; at worst, a cultivating of reputation rather than substance.	Aristotle Alasdair MacIntyre Martha Nussbaum

Using the three main theories, clinicians can categorise (i) the types of ethical claims patients tend to make against themselves in the context of life-changing illness and (ii) types of more helpful alternative claims that can be nurtured via discussion in clinic.

Overall, we're rarely rebuilding from scratch. Even in lives traumatised to the point where survival seems miraculous, we can start with that reality. We can marvel together at the capabilities that sustain. People also tend to clutch best hopes alongside worst fears. Drawing out both enables plans to be formulated which allow us to start in more encouraging directions. Relatedly, most people have some form of social network. Defusing shame allows this to be nurtured, as a "brains trust", to help the person rebuild.

Checking Our Thinking

With practice, qualitative evidence of patients' experience is captured in every clinic correspondence. My norm is to dictate a letter, with the person, at the end of each consultation. It's copied, with permission, to relevant healthcare practitioners and family. During dictation, I watch for the warmth that greets our shared account and co-created plans (please see also Fig. 1). This sense-checking helps judge tone and gentle humour used to encourage new thought. The letter includes a request for the person (or legal guardians) to revert to me if queries or corrections come to mind. But if I sense disquiet or confusion, I go back to the ABC of rehabilitation to try to figure out what's being missed.

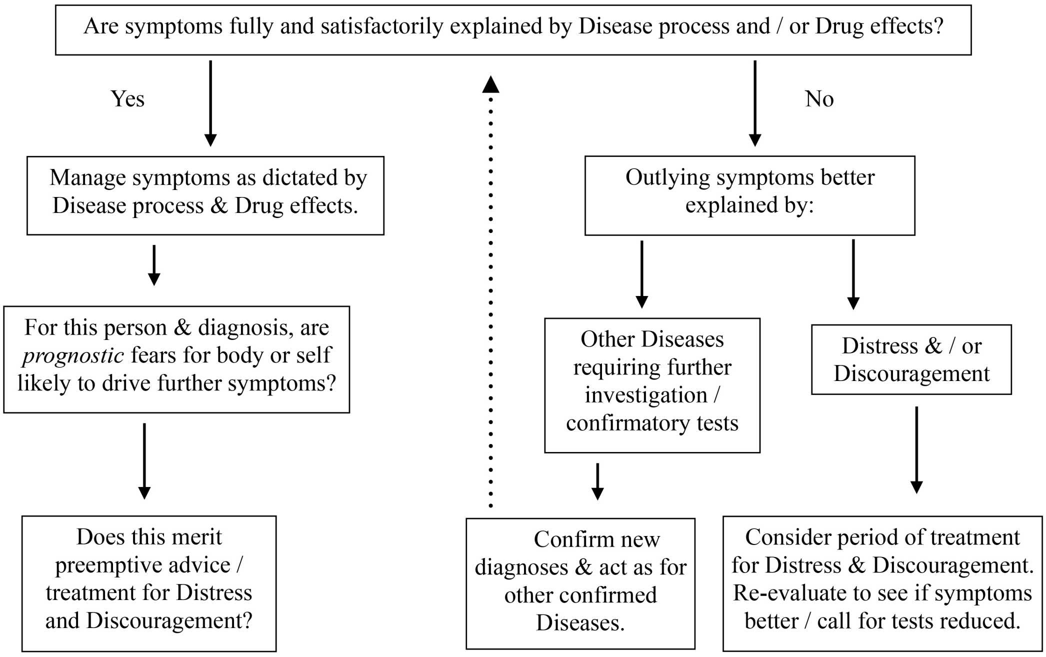

Fig. 1. Using the 4D model in the clinic. The flowchart suggests simple prompts for clinicians which aim to encourage shared decision-making (SDM) that's inclusive of options across all four of the 4D domains. This widened set of options can be then compared using standard shared decision-making (SDM) methods such as the BRAN template (weighing the Benefits, Risks, Alternatives and options for doing Nothing).

The 4D approach can also be used to lead a multi-disciplinary team, when dealing with case complexity (please see Fig. 2). While applicable to most long-term conditions, the 4D model has its boundaries. Most obvious is cognitive impairment, where patients can't retain how symptoms emerge from their 4Ds. Second, as Diderot was warned, we're born originals, but so often die copies (Shapiro, 1997): the 4D model is biographical, helping originals, while RCTs are biometric, treating copies. It's an important adjunct whenever we, as "originals", fall outwith the strained assumptions of stratified biometric similarity on which randomised controlled trials (RCTs) rely (Greenhalgh et al, 2014; Stegenga, 2018b). When evidence-based practice can't cater for individual biography, the 4D model supports with practice-based evidence. Its use is not restricted to rehabilitation medicine but will be of value wherever practitioners choose to notice that much personal suffering evades their current, chiefly biometric, 2D method. And with help of interpreters, the 4D model can even be used across languages and cultures—if the practitioner takes Freire's open, dialogue-based approach - learning, long before seeking to advise.

Part Three: Philosophical Paradigms

In this section, I review underpinnings for the 4D model, contrasting a traditional clinical approach, second, the biopsychosocial paradigm and third, recent accounts of health from philosopher Elizabeth Barnes.

Problematic Silos

The stereotyped clinical encounter becomes unrealistic, when unduly compartmentalised or blinkered about suffering. Biological, psychological and social matters are dealt with in siloes and instrumentally. Clinical letters list the biological conditions and their physical treatments. Separately, anxiety and/or low mood are listed. Separately again may sit a listing for social isolation, inadequate housing or even homelessness. This problem list is reductive, but it can grow and grow, fostering a sense that, while comprehensive, the issues identified are discouragingly insurmountable. Clinicians, themselves, become amplifiers of that, as if encouragement, by creating expectations, is somehow culpable.

This defensiveness and lack of realism isn't new. Illich (1976) described the gap between how medicine claims to work and its more harmful realities. He coined the term *iatrogenic* to capture this, intending this less as occasional side-effect of medicine and more as realistic appraisal of its routine harms (Illich, 1976). Kennedy (1981) captured medicine behind its mask—defensive and claiming of a certainty that's often moral and social, rather than tested and scientific. More recently, Stegenga has made the case for a humbler medicine that recognises the fundamental philosophical limitations of claims to evidence-based effectiveness (Stegenga, 2018b).

Integrated Biopsychosocial Paradigm

A paradigm which might allow at least a holistic response is Engel's biopsychosocial one (Engel, 1977), as taught within rehabilitation medicine. The emphasis is on appreciating how each dimension influences others. For example, loss of mobility, lowers confidence and social interaction. This lowers mood, motivation and fitness, further weakening mobility. The importance given to *function-*

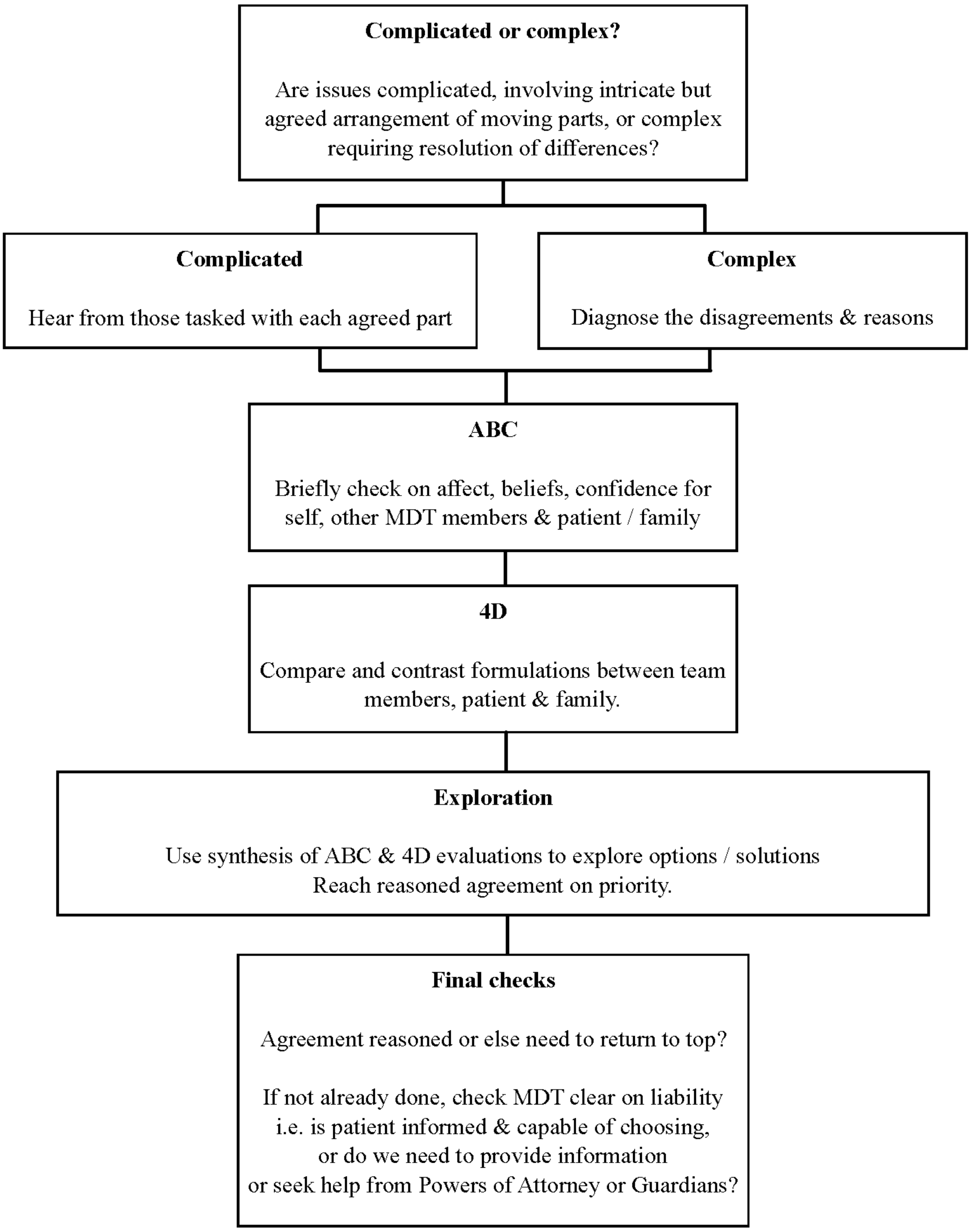

Fig. 2. Using the 4D model in the Multi-Disciplinary Team (MDT). This shows how MDT discussions can progress by (i) distinguishing *complex* from *complicated* issues, (ii) screening for problems using the ABC method (please see main text) and (iii) agreeing therapeutic approaches by use of the 4D model.

ing (Stucki and Bickenbach, 2017) allows a better conversation than one in which only morbidity and mortality matter. But that functioning is often assessed quite concretely, with reference to activities of daily living, work and productivity, and perhaps social functioning, in terms of friendships and family life.

Sitting in clinic, Engel's paradigm can feel hard to integrate and explain. In my view, it also gives insufficient recognition to the *visceral* and *ethical* challenges posed by life-changing illness. The 4D model helps articulate these, in ways more readily comprehensible to laity and professionals alike. Since working with it, I've met a philosophical analysis of health that feels more realistic than Engel's biopsychosocial paradigm. It approaches our models of health with creative doubt such that we don't ignore the problems posed by Illich, Kennedy and Stegenga.

Recognising Our Embodied and Ethical Woes

"Health Problems" by philosopher Elizabeth Barnes (Barnes, 2023) draws our attention to two issues, already alive in clinic, but which are worth stating aloud. First, is her recommendation of *ameliorative skepticism*; second, her taxonomy of the competing and variously inadequate accounts of health. Skepticism is ameliorative when, rather than dismiss all accounts of health as inadequate and therefore of nugatory value, it still allows for consideration of which account would be best utilised in the particular predicament. This pragmatism fits well with the 4D approach. We share a dialogue with patients, weighing explanatory factors behind symptoms. This helps them judge how each account stands up to the facts of their experience.

Barnes' taxonomy can be mapped to Engel's, with her *biological* account of health and her *political* one, congruent respectively with the bio- and -social from Engel. But in contrast, where Engel holds simply the psychological, Barnes introduces both *phenomenological* and *normative* accounts of health. These cater, respectively, for the intense subjectivity of illness, and for its sometimes profound effect on morale and our sense of the good life. One can detect in this taxonomy aspects that map closely to the 4D model. *Distress* captures the *phenomenological* and embodied experience of feeling ill and at risk. *Discouragement* can be mapped to Barnes' *normative* account, with both sharing that sense of evaluative judgment where one feels somehow at fault for estrangement from the good life. This crucial connection, between discouraging social emotions and adverse moral judgements, is also understood in classic works by philosopher Martha Nussbaum. She highlights the central role of emotions as "upheavals of thought" within our normative landscape (Nussbaum, 2001a). Her meditations also emphasise the role of moral sentiments when considering the art and fragility of the good life (Nussbaum, 2001b). That art, vital to each of us, sits at the heart of rehabilitation. As argued, it requires more than a 2D vision.

Conclusion

The 4D model provides a versatile and rehabilitative approach to medical care that bridges the unrealistic mind-body binary to allow patients and clinicians common language to negotiate long-term symptoms. Person-centred, it relies on a change in our clinical manner, listening with curiosity and advising with humility, rather than telling with certainty and simply referring on when suffering persists. Integrated, it recognises that prognostic fears for body and self, manifest respectively as *Distress* and *Discouragement*, are natural consequences of being diagnosed with significant *Diseases* and treated with requisite *Drugs*. Just as we'd no longer divorce thromboprophylaxis from surgical care, or consider management of toxicity somehow separate from the quest of chemotherapy, we can use the 4D model to avoid unrealistic 2D appointments where diagnostic workup sits estranged from feelings and symptoms that flow from prognostic doubt. Being personalised and integrated, the model fits new philosophical accounts that emphasise our need for multiple perspectives on health in recognition that, in isolation, none suffice.

Key Points

- In long-term conditions, medicine can appear unrealistic if the diagnostic hunt for cause neglects discussion of disease effects and their prognoses.
- By attending to experienced effects, the 4D model can balance diagnostic and prognostic conversations, helping clinicians and patients ameliorate long-term symptoms.
- Use of the model highlights that life-changing conditions bring sufferings that benefit from attention to ethics and the humanities, disciplines evolved in response.
- The model fits recent philosophical accounts of health which highlight the embodied and ethical woes wrought by life-changing illness.

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Not applicable.

Author Contributions

EJ conceived and designed the review, drafted the manuscript. As the sole author and guarantor, he has approved this final version and is alone accountable for all aspects of the work.

Ethics Approval and Consent to Participate

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Conflict of Interest

The author declares no conflict of interest.

Supplementary Material

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