Hypochondria and Self-Recalibration

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Abstract

Health anxiety is, among other things, a response to a universal epistemological problem about whether changes in one's body indicate serious illness, a problem that grows more challenging to the individual with age and with every advance in medical science, detection, and treatment. There is growing evidence that dysfunctional metacognitive beliefs – beliefs about thinking – are the driving factor, with dysfunctional substantive beliefs about the probability of illness a side-effect, and that Metacognitive Therapy (MCT) is more effective than Cognitive Behavioral Therapy (CBT). However, hypochondria is distinct from other forms of anxiety, I argue, in ways that make some reality-checking techniques of CBT and MCT of limited usefulness. I propose a Re-Calibration Technique (RCT) that complements these therapies by focusing on a metacognitive belief that has not been studied: the patient's presumption of his own personal reliability in judging symptoms, an assumption exposed every time he disagrees with a doctor. I propose a technique whereby a patient keeps a long-term register of every episode of alarm about symptoms and its resolution, possibly years later. When healthcare-seeking impulses arise the patient then uses his own track record to re-calibrate his confidence that medical attention is needed. The new technique allows one to improve self-judgment about whether one has an illness or not by improving self-knowledge of one's own reliability.

Keywords: Hypochondria; Health Anxiety; Reliability; Meta-Cognition; Re-Calibration

Introduction

Hypochondria, or illness anxiety, is, among other things, a response to an epistemological problem about how to respond to uncertainty and incomplete evidence, in this case the

evidence being personally observed changes in our own bodies. The disposition to illness anxiety is enhanced today by increased patient authority and right to knowledge about one's own case, the great success of medical science in detecting the nascient and invisible and treating early stages of disease, and the easy availability of information (and disinformation) over the internet. Cognitive Behavioral Therapy (CBT) addresses illness anxiety mainly by targeting dysfunctional beliefs about illness, and biases and fallacious reasoning that lead to catastrophic misinterpretation and reassurance-seeking behaviors. Metacognitive Therapy (MCT) targets beliefs about thinking that deprive the patient of executive control over rumination and worrying processes. Both techniques largely presume that worry is harmful, and the goal of therapy is to teach the patient to be able to forego it. However, worry is a motivator that is not always harmful, and can be useful if it does not blossom into obsessiveness, and even among anxious worriers some are better judges than others of the seriousness of their symptoms. Once the health-anxious patient learns how to control whether he worries or not, the concrete question of when a particular set of symptoms warrants alarm or a doctor's attention remains throughout his life, and except for those who die of sudden death heart attacks, accident, or murder, there will be a point at which worry is the right response.

There will never be a shark in your swimming pool, but you are very likely to develop a serious illness at some point in your life, even if only near the end. I will argue that hypochondria's epistemological problem is distinct from that of other anxieties in ways that the current best treatments for illness anxiety are not fully equipped to address. I will propose a technique of self-recalibration, that is, revising one's confidence that a symptom is an indicator of serious disease on the basis of a track record of the frequency with which one's past symptoms and complaints did and did not turn out to be or become a serious disease. Like MCT this strategy targets meta-beliefs, in this case the belief – evidenced every time one rejects a doctor's reassurance – that one is a reliable judge of whether a set of symptoms indicates serious disease, but as in CBT the aim is objective evaluation of a substantive, but individual, fact, namely how good one actually is at making such judgments. This technique teaches the user to investigate for himself how far his judgment of the seriousness of a symptom should be taken

seriously, and thus potentially teaches new habits around use of health care resources and acceptance of reassurance. It can also be used to measure how well CBT and MCT are succeeding at their goals.

Health worry as response to a universal epistemological problem

We generally expect an adult to figure out for himself when symptoms warrant going to the doctor, even if he relies on an online symptom checker or a phone call to the nursing staff in the process of that figuring. And even though a child should be able to rely on a parent to notice that he has a fever, he will still be the first to notice that he has a tummy ache. In some respects a person is in a privileged position to know that something is upset in his own body, and the health care system relies on the patient to notice that attention is needed in the obvious cases and to speak up about how he feels. But the patient's authority, and the health care system's reliance on it, must immediately be qualified; the patient is not in a privileged position to know that he does or doesn't have cancer, and symptoms that may seem obviously alarming to a patient may not warrant extensive investigation in the experienced judgment of a doctor.

Hypochondria involves excessive attention to bodily signs and symptoms, and their potential as indicators of serious disease states. It is easy to think that we know what counts as hypochondria, but what is excessive depends on the medical knowledge and capability, and the health standards, of one's society. Annual visits to a physician even if nothing feels wrong, quarterly teeth cleanings and cholesterol checks, monthly breast self-exams, weekly workshops on nutrition, stress, or fitness to help us "live well", and personal heart-rate monitors, seem normal to many of us, but might look neurotic to a 17th century Londoner trying to avoid being struck down by the plague.

On the other side, precautions that seem paranoid to us can turn out to be quite rational on consideration of the statistics. A forest-dwelling New Guinean's adamant policy of never sleeping under a dead tree may seem like superstition, but if one estimates the number of

nights in a lifetime such a person will spend sleeping outside in the woods, and the frequency with which dead trees fall, the policy has a solid basis in the facts. Similarly, taking precautions against falling in the shower addresses a common cause of death in people over the age of 70. It is a good idea to get the chances of a fall well under one in a thousand, since at that probability and a shower a day it is likely to take but three years for a person to hit the floor. Looking after activities that have a low probability of leading to harm but are engaged in very frequently is an approach to risk for which the anthropologist Jared Diamond has coined the term “constructive paranoia”. (Diamond, 2012)

The decision whether a new symptom warrants going to the doctor is different for us than it was for a Londoner in plague times. Our scientists, and we laypersons, have more knowledge, and our medical practitioners have more capability to diagnosis and treat illnesses. Increasingly they can even remedy conditions that we did not used to consider illnesses so much as inevitable accompaniments of aging, making it harder to keep a steady eye on what should be considered normal versus worthy of a doctor’s attention. A person suffering from joint pain and immobility today isn’t expected to be satisfied to take an aspirin and amble more slowly, but to go to the doctor and ask for more specific medicine, and even ask whether a joint replacement is possible. With a new hip you can enjoy 20 more years of avid golfing.

Today it is common knowledge that the body has not only organs and systems but also microscopic and sub-microscopic levels of functioning. Invisible fat molecules harden the arteries, invisible DNA from parents forms the blueprint from which a child develops, and invisible germs spread infectious disease. It is common knowledge that manifest symptoms not caused by trauma are caused by subvisible processes, and early, potent, stages of disease processes could be present at any time without our knowing it. What goes on in a human body could be threatening and most of what goes on in a body is not visible to its owner, leading author Catherine Belling to compare our situation to that of the woman swimming placidly on the surface of the water as a giant shark rises up from the deep, in the iconic poster of the movie Jaws. (Belling, 2015)

Medical science in recent decades has had astounding success not only in understanding and treating diseases, but also in learning how to detect its early, subvisible stages, holding out the promise that eventually all conditions will be detectable. Submitting oneself to testing is now a normal part of maintaining health. In this day and age a person with access to medical care who does not get a cholesterol and blood sugar check by 40, a mammogram or PSA test at 50, and a colonoscopy by 60, seems faintly irresponsible. And we know that there are thousands of other tests that will be there when we need them. Detection has become a normal part of our lives in part because in many cases we have means of intervening to remedy the condition or prevent it from developing further, and it would seem to be foolish not to use them as early as possible.

For the time being, we all know that we will die, and if it is a natural death then the fatal condition will develop from something subtle and small, something sub-visible but in principle detectable. And more subtle techniques of detection are continually being developed. Early detection improves one's chances of postponing death, and self-scrutiny aids in early detection. A hypochondriac who worries that his subtle symptoms indicate that his body harbors as yet undetected early stages of a fatal illness has not exactly lost his marbles. Given our picture of the body and how it lives and dies, the availability of medical care, and public health admonishments to submit to regular testing and to keep our eyes open for early signs of "silent killers", the wonder is that we are not all hypochondriacs, running to the doctor with every new development in the way the body looks, feels, or works.

In fact, arguably there has been a shift of behavior in the direction of hypochondria in the last several decades, at least in the US and the UK. It is estimated that the "worried well" may be costing the UK £56m annually.[1] Many factors in addition to our picture of the body and public health recommendations encourage this. Where the patient is not required to make a co-payment for each doctor visit, as in single-payer systems like the NHS, there is no financial disincentive to visit the doctor. The internet makes information – not only misinformation – about health and disease readily available, and since the era of informed consent patients have a right to all of the information in their medical records, and have all of the authority to make

[1] The figure of £56m is estimated by Peter Tyrer following results of study in Denmark by Fink et al. (2010).

decisions among treatment options that are offered. They have the perceived right – and in some systems an actual right – to a second doctor's opinion. These factors reduce the perceived authority of doctors, and thereby their ability to reassure patients and to resist ordering tests they regard as unnecessary. A culture sensitive to liability also increases the perceived authority of the patient and gives an incentive to doctors to err on the side of overtesting, with every decision to test serving as affirmation of the possibility that something is wrong. The doctors of yesteryear could avoid unnecessary tests by prescribing placebo – I know what this is, and we can treat it! – but in the age of informed consent a doctor can only get the benefit of placebo if she can trigger it without lying.[2]

The information and authority entrusted to modern patients brings a responsibility that can be a burden, and can, ironically, encourage them to pay more attention to their health status than might be healthy. A person who manages to avoid the health care system early in life will still with increasing age eventually develop some symptoms that bring her within its orbit. Symptoms typically increase with age, as does the probability of serious illness. Many of those illnesses will be treatable, and more will be detectable and treatable as time goes by, all of which leads to a more frequent need on the part of a patient to address the epistemological problem of how to decide when a symptom is worthy of medical or even personal attention.

The hypochondriac has an extreme solution to this problem, which is largely a strategy of avoiding false negatives – where a disease is present but one does not believe it – at all cost and worrying over and reporting everything, thus exercising no control over false positives – believing a disease is present when it isn't. However the opposite policy to the hypochondriac is also pathological. This would be where we avoid false positives at all cost by reporting nothing to a doctor, and never taking a symptom as a reason for concern. The responsible patient cannot solve this epistemological problem by quitting the doctor the way that one (potentially) quits smoking once and for all and puts it out of one's mind. The challenge is more like the problem of bad eating habits, where one must continue to make decisions on a daily basis in an

[2] A better understanding of how the placebo effect works shows that this is possible. See Brown 2013.

ever-changing environment of cues and temptations; to simply stop eating is not a viable strategy.

Management of health worry is an epistemological and economic challenge for our times that will only become more pressing with increasing medical advances and the aging of the population. The hypochondriac's challenge is increasingly everyone's challenge. Clinical levels of worry about illness based on mild, ambiguous symptoms, are currently classified as a type of anxiety and treated like other forms of anxiety, for example with anti-depressants, anti-anxiety medications, Cognitive Behavioral Therapy (CBT), and more recently Metacognitive Therapy (MCT). CBT targets fallacious reasoning, dysfunctional beliefs, in this case about illness, and worry and threat-avoidance behavior for correction. More recent research has shown that metacognitive beliefs – beliefs about one's thought processes – have a crucial, perhaps the leading, role in causing and sustaining mental disorders, including hypochondria. This has led to a therapy (MCT) that does not engage with or challenge the content of a hypochondriac's thoughts about illness, but rather his beliefs about the effects and necessity of thinking about it, and the relatively automatic processes that underlie and sustain them. Thus, for example, where in CBT the patient will be asked what evidence he has for thinking he has a heart condition, a practitioner of MCT will ask what the patient thinks is the benefit of worrying about heart disease.

On further inspection of these methods below we will see that they are not fully suited to address some of the features that distinguish hypochondria from other forms of anxiety. For example, skills enabling a generic reduction of worry behavior do not prepare a person for the fact that it is nearly inevitable that worry about one's health will one day be appropriate. Below I will propose a technique that has some features in common with both cognitive and metacognitive approaches and has the potential to address distinctive features of health anxiety.

Hypochondria and its Psychological Causes

Though they do waste health care resources, many who seek medical attention unnecessarily at least cause no serious harm to themselves (unless a doctor is convinced to do excessive testing). But a fraction suffer from clinical levels of anxiety and neurosis over their bodily symptoms, mental conditions that are debilitating and interfere with normal living. A person with the kind of hypochondria I will discuss here, which is now called Illness Anxiety Disorder (APA, 2013), has preoccupation with the possibility, fear, or even conviction that he has a serious disease. There is a high level of anxiety about health without serious symptoms.[3] The condition is characterized by excessive[4] health-related behaviors, e.g., seeking information and care, vigilantly checking the body, seeking reassurance from doctors and predictably rejecting it or finding its effect short-lived. The diagnosis also requires that the condition cause significant distress or impairment and not be episodic but have lasted at least six months.

Hypochondria is distinct from malingering, a deliberate faking of symptoms in order to enjoy the benefits of illness, for example being excused from work. The hypochondriac is not faking but is sincerely interpreting real, usually mild, symptoms as indicators of disease. The condition also is not primarily the expression of mental distress as physical symptoms, called somatization. In such a case the body is expressing the mind, whereas here it is the mind interpreting the body. The interpreting can lead in turn to intensification of the sensations involved in the symptoms, and thence to further confirmation of the fear of disease, but the interpreting is the instigator in that chain reaction.

Hypochondria involves more anxiety and neurosis than the average person has, but some more specific psychological features are also more prevalent in those who score high on illness anxiety measures than in those who do not. One is known as *Somatosensory Amplification* (SA), a tendency to feel negative physical sensations more intensely, so the experienced symptoms

[3] When the symptoms may be more serious, as with pain, and the preoccupation is with the symptom rather than with its indicating a serious illness, Diagnostic and Statistical Manual - V classifies it as somatic symptom disorder. Hypochondriasis has been replaced in this new manual with a disjunction of somatic symptom disorder and illness anxiety disorder. (APA, 2013)

[4] As indicated above, “excessive” should be understood as relative to context, to what is considered normal by the society and health care system one inhabits.

are actually worse than the average person would have or would expect. (Barsky, 1992; Noyes et al., 2003) Another is known as *Catastrophic Misinterpretation* (CM) of symptoms, a tendency to infer the worst possible causes for one's symptoms, or at least to consider them possibilities to be taken seriously. Such a case would be putting throat cancer high on the list of possible explanations for waking up with a sore throat, as if it were as likely to be the cause as the fact that you talked a lot the day before or slept in a room with dry air. (Barsky et al., 2001; Malis et al., 2002) Those with illness anxiety also tend to score high on measures of *Intolerance of Uncertainty* (IU). (Koerner and Dugas, 2008) The causal roles of these various factors is not a settled matter, and there is evidence of some factors moderating the relationships between others. For example a tendency to catastrophic misinterpretation of symptoms does not lead to high levels of health anxiety unless a person also has high intolerance of uncertainty. (Fergus and Valentiner, 2011; see also Norris and Marcus, 2014 and Marcus et al., 2007 for recent literature reviews of a wide range of variables related to hypochondria.) Recent evidence about the moderating role of meta-cognitive beliefs will be discussed below.

Current treatments for hypochondria

In addition to anti-depressants and anti-anxiety medications, Cognitive Behavioral Therapy (CBT) is often used for hypochondria, as it is for other forms of anxiety. This form of therapy is based on a model in which the problem of the disordered patient is largely seen as a cognitive problem of erroneous appraisals, where biased interpretations of symptoms lead to dysfunctional beliefs about whether one is ill. The therapy thus focuses on helping the patient learn how to avoid forming dysfunctional beliefs. (Warwick, 1998; Salkovskis et al., 2003) Some CBT for hypochondria takes the form of questioning specific interpretations of bodily symptoms and – because reassurance that physical illness isn't present tends not to change such a patient's belief – the therapist tries to replace the patient's interpretation of his symptoms with an equally plausible alternative explanation that is less threatening, a process known as reattribution.

The therapist may help the patient get more accurate at estimating the probability of serious illness by using pie charts, and identify and correct particular cases of fallacious reasoning, e.g., jumping to conclusions or catastrophizing, by asking what evidence the patient has for his dire explanation of the symptoms over other explanations. She will use behavioral experiments such as having the patient focus on a body part and witness that the focusing detects sensations that had not been noticed but had been there all along and causing no trouble. In another behavioral experiment she will have the patient increase and eliminate safety-seeking behaviors – like checking the body – on alternate days, recording the quality of life those days, and see that the days without these behaviors were of a higher quality overall. A similar experiment is done with worry, having the patient deliberately worry out loud and watch the effect on the quality of his experience.

For relapse prevention in hypochondria CBT focuses on, among other things, general dysfunctional beliefs about health that can mediate the triggering of worry by the observation of a particular new symptom. A common such belief is that a physical symptom is always due to a physical cause. A patient may be asked to construct a list of cases where this was not true, in order to shake the conviction in that general claim. Overall, strict CBT targets the substantive beliefs that a person with health anxiety has about illness(es) and the explanation of symptoms, and the threat avoidance behaviors that go with them, and challenges these with reattribution tasks and behavioral experiments.

CBT has shown a significant positive effect on hypochondria, though the effect is much greater compared to no treatment than to treatment as usual, and there is some evidence that the effects are relatively short-lived. (Olatunji et al., 2014) The more recent metacognitive model of mental disorder has looked particularly promising in general, and for hypochondria in particular with recent empirical discoveries about the role of metacognitive beliefs in illness anxiety. For example metacognitive beliefs moderate CM (Bailey and Wells, 2015a). One who is prone to catastrophic misinterpretation will tend to have illness anxiety only if he also has metacognitive beliefs about the uncontrollability and danger of thinking. While both dysfunctional beliefs about illness and dysfunctional meta-beliefs about thinking are correlated significantly with health anxiety, the strength of the relation between health anxiety and the dysfunctional

beliefs about illness has been found to be weak, whereas for metacognitive beliefs the relation was strong. In one study (Bailey and Wells, 2015a) metacognitive beliefs, especially those about the uncontrollability of thought processes, were found to be the strongest independent predictors for health anxiety; they accounted for a large proportion (49%) of the variance between those who were health anxious and those who were not, when neuroticism and dysfunctional beliefs about illness were controlled.

Metacognitive Therapy (MCT) is a method of treatment based on a model of all psychological disorder as involving a loss of executive control of thought processes. (Fisher and Wells 2009) In the metacognitive model anxiety, rumination, worry, and other compulsive behaviors, for example, are caused by general maladaptive strategies of processing thoughts that interfere with a person's ability to regulate what kind of thought process to engage in and whether to engage in thought at all in response to a stimulus. It emphasizes that thinking is a process that is affected by much more than the content of propositions entertained. For example, it is not just that one thinks about the sore throat as indicating throat cancer because of poor judgments about the probabilities, but that one continues to think about it because of a metacognitive belief that one's thoughts are uncontrollable or that persistent attention to the topic will be beneficial, beliefs that support further trains of thought about it.

Even the erroneous metacognitive beliefs about thinking that patients attest to and that are found to be good predictors of excessive worry, are not merely verbal affirmations of the content of propositions but are markers of the mind's general procedures, mechanisms, and programs for engaging in mental processing of stimuli. The therapy must therefore not merely challenge the content of even these metacognitive beliefs but aim to modify the procedures they are manifestations of. The aim of the therapy is to build in the mind new processing programs to increase control and enable the patient to gain flexibility in choosing whether to engage in thought or not, to help the patient develop a new relationship to his beliefs and thoughts as such.

MCT teaches the patient to distinguish between thought processes being in the object mode or the metacognitive mode. Obsessive thinking tends to stay in the object mode, with the person

attending to the subject matter of the worry, for example whether he has throat cancer. MCT teaches him to attend to the thought as a thought, to be able to observe a thought as something that is not an external event whose content actually occurs but is a happening in him, floating by as if on a river. He learns through practice that it will pass if he does not reach out for it and that he has the ability to refrain from doing anything at all with it, including making an effort to control it. It does not aim to distract attention from the thought to something else, or to instill generic relaxation and acceptance (as in Mindfulness training), but to engender a new relation to the thought that is attention at a distance (Detached Mindfulness). If the metacognitive model is right that a person must regain the ability to not engage in thought at all in response to a stimulus, then some of CBT's methods could be counterproductive. A focus on the content of the hypochondriac's beliefs about illness, for example asking him for evidence for them or the re-attribution strategy in which the therapist offers the patient alternative, equally plausible explanations of his symptoms, will not help him gain control of thinking as a process but encourage even more thought.

Limitations of CBT and MCT

CBT and MCT are distinct approaches, but they offer valuable insights and techniques that are to some extent complementary, and any of which could be valuable for a particular patient depending on his individual tendencies. Focusing solely on the content of beliefs, as in strict CBT, and not addressing thinking qua thinking as MCT demands, might do little to change engrained patterns of processing that make every new thought the stimulus for another thought regardless of its content. Experimenting with one's thought processes as an object of attention addresses the latter and may restore a patient's flexible executive control over whether to continue thinking or not. However, if as in strict MCT the patient receives no training at all about substantively erroneous reasoning about object-level facts, e.g., about the probability of throat cancer or the probability that an experience has a medical explanation, then he will end up no better for knowing *when* it is and is not appropriate to employ this newfound ability to ignore a troubling thought. Both therapeutic methods have value and

ideally a patient would improve *both* in reasoning about substantive facts and in the ability to flexibly control thinking as thinking.

However there are features of hypochondria that are distinct from other anxieties and that it seems to me these methods alone will have some difficulty addressing. One is that while there are many substantive matters that all patients can be safely taught never to worry about, for example that everyone at a party will laugh at them simultaneously, or that there is a shark in the swimming pool, we cannot truly say of any patient that he will never have good reason to be concerned that he has a serious disease. On the contrary, it is highly likely that he will have at some future point in his life either cancer, heart disease, diabetes, stroke, etc. We don't know when, or which disease it will be, and because its early stages would be hidden we do not know that the condition is not present now. Moreover we can't soundly make the generic recommendation to have no concern unless symptoms become severe enough to be impossible to ignore, because that policy will lead in many cases to missed opportunities at prevention.

Indeed, in a generic sense reality is on the hypochondriac's side: in one study people with tendencies to health anxiety exhibited less optimism bias about their own health than normal controls. (Barsky et al., 2001, p. 785) This is remarkable in two respects, first, that those we tend to think worry too much about health were still less pessimistic than the true probabilities warrant, and second, that hypochondriacs had more realistic, not less realistic, estimates of their probability of having a disease than normal controls did. It is nearly inevitable that concern about one's health will someday become appropriate; the hypochondriac could be said to be onto this reality more nearly than the rest of us are.

The time lag between the beginning of some serious diseases and the manifestation of unambiguous symptoms makes some of the techniques of CBT and MCT difficult to apply. For example, in the Worry Mismatch Strategy, applied by both paradigms, one does experiments to learn that one has a tendency to worries that are or were unfounded and not useful. Either retrospectively or prospectively one records how worried one was or is about, say, a party, and then reflects on what one's experience of the party actually was or turns out to be like.

Worry Mismatch is a strategy of reality checking that can be used at the object level or the meta-level. It involves a worry script, a chronicle of one of the patient's particular worry episodes, and a reality script, an account of how the feared situation actually turned out. Typically there was more worry than was appropriate and through the experiment the patient will have seen this with his own eyes in his own case. For example, in retrospective Worry Mismatch a patient may be asked to recall from his past his worries about a party he was anticipating going to, and list the things he had feared might happen – being late, making a gaffe, being ignored, being laughed at – and then for each entry on the list to recall whether that thing actually happened, or if it did whether it was as troubling as expected. He will typically see that most of the bad things did not happen – an object level discovery about probabilities – and will also see that worrying about them played no positive role in that, indeed only played the role of consuming mental energy – a lesson at the meta-level. In prospective Worry Mismatch a patient is given an assignment to list worries he has about a future event, and then after the event to record what actually happened. As with retrospective mismatch, lessons can be learned at both the object level and the meta-level, about the low probability of terrible events and the uselessness of worry.

In social and other forms of anxiety there tends to be a short timescale between the worry about an event and the feedback that tells one whether the worry was worth it. The feedback can also be definitive, and definitively answered by the patient himself – Were you in fact late? Did you in fact feel you were being ignored? Neither of these features is likely to be available in anxiety about symptoms and illness. For example, in a retrospective case, we can ask the patient about a previous instance in which he was worried about having throat cancer, but unless it was years ago the only feedback that can be had about whether that worry was correct comes from the judgment of doctors. The hypochondriac has a tendency to reject doctors' verdicts that the symptoms indicate nothing concerning, or to seek reassurance repeatedly because the reassurance doesn't last, so there will not be the same sense of an immediate and solid discovery that the worry wasn't worth it.

The hypochondriac has a difficult time because it genuinely takes a long time for the party to be over in illness anxiety; the closest one can get to a judgment about the throat cancer worry that

has the same definitiveness as the judgment that one was not late to the party is to wait five years and notice that despite the lack of treatment for throat cancer one still hasn't died of it. But even that would only make it definitive that one's worry five years ago was unfounded. Today's worry about throat cancer wouldn't be addressed by this. Resistance to reassurance does not mean that hypochondria is more irrational than other forms of anxiety; it is a natural response to the distinctive facts that the beginning stages of serious illness are hidden and such illness will often take a long time to signal its presence loud and clear. The long time to feedback, and the ambiguity of early signs of serious disease limit the efficacy of retrospective and prospective application of the Worry Mismatch strategy to illness anxiety.

The Re-Calibration Technique (RCT)

In hypochondria, both retrospective and prospective reality-checking at the object level – whether one had or has a disease – and thereby at the meta-level – whether one's worry was or is worth it – is challenging in a distinctive way, partly because we know the hypochondriac will be right someday, and partly because at the point when he becomes right the symptoms will likely look as mild and ambiguous as the ones he's worried about. Because of these things definitive feedback can take a very long time, and when it does come it will often be too late to be relevant to the current worry. To address this challenge I propose a technique to supplement CBT and MCT that could help a patient to break out of the circle created by the impossibility of timely feedback that the patient can verify for himself.

Metacognitive theorizing and practice have identified a number of types of beliefs about thinking that manifest, and play a role in sustaining, a faulty relation among information processing systems. These include beliefs that thoughts can cause illness, e.g., "Thinking negatively can increase my chances of disease"; beliefs about biased thinking, e.g. "I will be punished for thinking I am in good health"; and beliefs that thoughts are not controllable, e.g. "I have no control over thinking about my health." Also discussed, of course, is the belief that

thinking can improve one's chances of solving a problem, and therefore remaining healthy. However a type of metacognitive belief that has not been studied is beliefs a person may have about their own reliability in making judgments. This belief is of central relevance to hypochondria because the fact in question here – whether one has a serious disease when one has mild symptoms – is hidden, and so an immediate judgment requires expertise.

The key to RCT is, first, to notice that the health-anxious behavior of excessively seeking medical attention and regularly being unsatisfied by doctors' reassurances betrays that the patient has a meta-cognitive assumption about himself in particular, a presumption that he is at least as reliable a judge as the doctor of whether symptoms are a sign of serious illness. Otherwise the patient's rejection of the verdict does not make the slightest sense. The second key is that the patient has the means to test this assumption himself by keeping a record of his judgments and their outcomes in a particular way I will detail below.

Third, even though the verdicts about whether worries of the past were correct will take time, in some cases a lot of time, to become clear, the current verdicts that past worries were unfounded and useless – e.g. the verdict that one did not have throat cancer five years ago – are relevant to whether to take seriously one's worry about throat cancer now. By contrast, the verdict that one did not have throat cancer five years ago is not relevant to whether one has throat cancer now. The body may have changed dramatically over those years, whereas one's ability to judge whether symptoms are serious probably has not changed much unless one has acquired a medical degree or been cured of hypochondria in the meantime. In any case, as we will see, such changes in reliability will themselves show in the record. The most recalcitrant cases of illness anxiety are those in which the reliability of the patient's judgment is least likely to have evolved, and the track record will be most telling. The worse the problem is the greater the means a patient's investigation of his reliability will have to expose his poor ability to judge.

In what I will call the Re-Calibration Technique (RCT) one would teach the patient to focus his enthusiasm for self-scrutiny on his own judgment. He will ask a question about his ability to judge the seriousness of his symptoms, but he does not ask whether he is a hypochondriac, a proposition which many patients will readily admit without this having any effect on their

condition. Rather he asks: Am I a reliable judge of whether my symptoms are serious? And the question is not as easy to answer as Are you a doctor?, to which the answer could be No, but I know things about my body that he does not (which would even be true). Reliability here has a concrete and specific meaning, namely, that the probability that one is correct given that one's confidence level is x should be x: one should be no more confident than one is likely to get these judgments right. If one's probability of success when one has x-level of confidence is x, then one is *well-calibrated*. If one's probability of being right is less than x, then one's confidence in one's judgment should come down to that level. (See ------- 2009, and 2017 Section 5)

How could the patient answer such a question about his judgment? The data in his history is ample information if it is recorded, preserved, culled and explicitly brought to attention in the right way, because the answer is a simple relative frequency. The model for the kind of investigation needed is that of a meteorologist examining the reliability of her forecasting to see how well she does at, say, predicting rain. For this investigation she would look to her record of the frequency with which it rained, say, on days where she forecast an 80% chance of rain. Of the set of days on which she predicted an 80% chance of rain, the proportion of days when it actually rained should be 80%.

Similarly, if one had a record of the occasions on which one felt certain one had a serious condition, and a record of the proportion of those occasions when one indeed had a serious condition, then one could calculate whether one was well-calibrated or not. For the hypochondriac, the frequency of serious conditions in the set of cases where he had high confidence in a serious condition will be low, and the more severe his hypochondria the lower this frequency will be.

To give a simplified example of the kind of record-keeping that a meteorologist could do, let us ignore that the forecaster's prediction will take the form of a probability or confidence that it will rain, and suppose that she makes a binary prediction of rain or not. Suppose that out of all of the days in March she predicted rain five times, and five times in April too. She would have

this chart ahead of time and fill in the predictions and the feedback on them as an ordered pair each day, but here we have filled in all of her predictions of rain at once for ease of exposition.

	March					April				
prediction	rain	rain	rain	rain	rain	rain	rain	rain	rain	Rain
reality										

Now suppose that it turned out that of those five days in March when she predicted rain only two of them actually had rain, and out of those five days in April when she predicted rain, again only two of them had rain:

	March					April				
prediction	rain	rain	rain	rain	rain	rain	rain	rain	rain	Rain
reality	yes	no	no	yes	no	no	yes	yes	no	No

Thus, out of the ten days when she predicted rain over this two-month period it turned out that only four of them had rain. Her confidence far exceeds her accuracy, and seeing this should make her think twice about broadcasting her rain predictions on the news. If she had a very long track record that showed the same 40% accuracy rate persistently, then she would have discovered a somewhat stable disposition in herself, and this would put her in a position to use the information about her bias to re-calibrate future predictions: every time she found she had the urge to predict rain she would adjust her confidence in rain down to only 40%. Of course, if she's doing the job this badly she might not keep it long enough to get the long track record about her reliability that would be needed to confirm a particular bias and thereby justify a particular re-calibration.

For the patient to determine how good he is at judging whether symptoms are indicators of a serious condition, he could keep a similar record of how often when he was alarmed it turned out to be MUS – medically unexplained symptoms – and never subsequently developed into anything dreadful or even medical. Keeping track of the fate of one's judgments about the

seriousness of symptoms would be similar to what the weather forecaster does. Suppose you went to the doctor five times in March and five times in April, every time with alarm about some symptoms. (The red figures in the boxes are alarm bells.)

March April

prediction										
reality										

Now suppose that on most of those occasions the symptoms did not receive a medical explanation, and the doctor advised you not to worry about them. All the cases in which either the doctor is sure the symptoms do not indicate disease or is sure there is no current reason to think they do or no way of determining whether they do, we will label Medically Unexplained Symptoms (MUS).

March April

prediction										
reality	MUS	MUS	MUS	Poison ivy	MUS	Migraine	MUS	MUS	MUS	MUS

In two of the ten cases when you were alarmed a diagnosis was made, one of Poison Ivy and the other of Migraine. This record alone is not going to be sufficient for re-calibration, obviously because ten cases is not a sufficient set of data points to show a stable disposition, but also because MUS is not like rain or not rain. MUS is like: We don't know whether it rained or not. It doesn't resolve whether one's alarm was warranted. The long timescale, in some cases, for resolving whether symptoms are serious means the patient will not have the relatively instant feedback that the meteorologist or the party-goer gets. Thus at first sight it appears that this method has the same problem that simple Worry Mismatch had above. However, it is okay if the party isn't over for a long, long time. Meteorology and script comparison may require that

the feedback be instant, but calculation of reliability does not; keeping a very long record is the key to this technique.

If the patient doesn't believe the doctor, then how will more time give him an ability to fill in the ledger with a diagnosis or a cross where he currently has "MUS"? The patient will acquire a lot of information about his mistakes if he is taught to recognize it as such. One way MUS can be replaced with "X" is for the patient to pay attention to the fact that some of the symptoms reported on some of those days have simply disappeared. (50-75% of MUS disappear in 9-15 months. (Olde Hartmann et al., 2009, p. 370) Second, some other symptoms will have sat around long enough without changing, when they should have gotten worse if they were indicators of serious disease, that the only rational conclusion is that they were not anything serious. If after 15 months 50% of the ambiguous symptom sets disappear, then we have the following chart:

	March				April					
prediction	🔔	🔔	🔔	🔔	🔔	🔔	🔔	🔔	🔔	🔔
reality	MUS	X	MUS	Poison ivy	X	Migraine	MUS	X	X	MUS

Now the record is more definite about your skill as a predictor: on 20% of occasions of alarm there was a medical problem, albeit a mild one, and on no more than 40% of the remaining occasions is it still possible that your alarm was warranted. If one suffering from excessive alarm pays detailed enough attention as the years go by, more and more of the MUS in this set of ten will be cancelled. And even if the first symptoms reported in March of this particular year persist, after ten years one will not any longer be able to say with a straight face that they indicated a brain tumor, because an untreated brain tumor would have killed a person by now.

Over time, the more you go to the doctor, and the more you get MUS classifications, and the more the MUS disappear over time or don't turn into anything worse, the longer and worse

your track record is going to get: the proportion of times there was a medical problem when you were confident there was becomes lower and lower, and the strength of that meta-evidence becomes greater because there is a greater number of data points. So the patient is going to have available a straightforward way to falsify the assumption that he's a reliable judge of whether symptoms indicate a serious medical problem. The more often a given patient goes to the doctor, the greater the quantity of falsifying evidence he will be able to get. In short, the worse his hypochondria is, the easier it will be for him to get evidence of that. The stronger this evidence, the more he becomes rationally obligated to reduce his confidence in his latest worry about symptoms.

One might think that the gist of this technique is already used, and to no effect, when a therapist points out to the patient that his alarm was unfounded in the past, and the patient says this time is different. However that is not an application of RCT. A therapist's vague and generic reference to the patient having been wrong in the past is very different from asking the patient to thumb through a notebook, written in the patient's own hand, that records a hundred occasions of alarm and a doctor visit, and red X's on 80% of the squares indicating they have been falsified. Even better if the more specific condition one thought one had is recorded in the register: one will not just be reminded that one has been wrong before but see all in one place the 20 times one thought one had Ebola, a diagnosis whose falsification on each occasion conveniently would have required only 21 days.

Explicitly focusing the patient on a track record he has compiled himself puts the burden on the patient to say exactly why this occasion is different from all the rest. The point isn't merely that the patient has been wrong in the past, but that he has been wrong on, say, at least 80 out of 100 occasions. The fact that the notebook is in his own hand means that he is not merely being told he is unreliable by someone else, but has verified it himself. With meticulous bookkeeping over a long enough time the patient can attain the same definitiveness and self-verification as he has for the belief that he was or was not late to the party.

One of the things that distinguishes RCT from CBT and MCT is the requirement of very long-term record-keeping. In fact, a proof that RCT has never been tried lies in how unrealistic it

appears to be to carry it out. A patient might have to maintain compliance for years. However, there is no way to change the fact that the timescale of definitive feedback in illness anxiety is potentially very long, and there will be no way to deal with illness anxiety that involves those kinds of cases without addressing that distinctive timescale problem. Casual memory cannot handle the quantity of data and long timescale required for the learning process about one's own reliability to be effective; a well-kept ledger appears to be the only alternative. [5]

Anyone would have trouble remembering enough in enough detail to evaluate his own reliability, but compounding this there is evidence that hypochondriacs have poorer memories than average for this sort of thing. In one study attempting to explain why reassurance fails for these patients, people who tested high on a hypochondria scale also had a poor memory, and poorer than non-hypochondriacs, for the frequency with which past examples got medical explanations, as opposed to no explanation or a different kind. (Reiff et al., 2006) After listening to audiotapes in which among other things a doctor evaluated symptoms and complaints and was asked to rate the likelihood there was a medical explanation, the study subjects were asked to recall what the doctor had said the likelihoods were, and those scoring high on hypochondria scales overestimated how many complaints got medical explanations. The experiments were done with the subjects trying to remember examples that were presented to them but that they were not themselves the subjects of. It is possible that the memory weakness is even worse when the track record concerns their own complaints, because a low frequency of hits in one's own predictions of medically serious conditions means that one was wrong a lot, and that tends to be harder for us to remember about ourselves.

Compliance with the record-keeping might be difficult, but a patient committed to improving might welcome the opportunity to try out a novel method. It is an advantage of this ledger exercise that it is mechanical and relatively crude, with a sign recording medical alarm, possible an entry about what one thinks the disease is, and a simple diagnosis or "X" marking that one was wrong. This reduces the opportunity for the kind of interpretive massaging that human beings are good at and that can help us maintain self-deception. There is little room for

[5] Another way of dealing with the timescale problem might be to teach the patient how to accept that one just cannot know whether ambiguous symptoms are indicators of serious disease.

interpretation if the headache you thought was a brain tumor didn't show up a killing brain event after 5 years. The patient also won't be able to protest that back then he wasn't really sure about it, but now he is; the record, written in his own hand, says he was as sure of it then as he is now. Insidiousness lives where the interpretation is not made explicit, and mechanical methods can provide an antidote to stealthy patterns of thought.

Conclusion – Worrying Well

"Vigilance will make me more healthy" is not true in general, but it is also not always false. "A physical symptom always has a physical cause" is false, but it would also be false to say that it never does. The lessons of CBT and MCT are not supposed to be that one must never attend to or evaluate negative thoughts, but that one will gain the ability to turn off fearful thinking in cases where that is appropriate. Yet when manuals for practice say things like 'The patient must stop asking the question "Is that safe?"' – as they frequently do – one could be forgiven for getting the impression that the message of these therapies is that worry is bad in general.

Even if that is broadly true for other forms of anxiety, in the case of hypochondria the patient's resistance to reassurance and his difficulty judging whether concern about a set of symptoms is appropriate has something of reality on its side. Whereas we can safely assume that it is very unlikely a patient will ever be pointed to and laughed at by everyone at a party simultaneously, it is not unlikely but nearly inevitable that he will develop a serious illness at some point in his life. At some point, worry will be the right response. It is also likely that this illness will spend a significant amount of time under the radar, not showing signs that are distinguishable from mild symptoms that can be attributed to other things. The reality and the hiddenness of the fact that is in dispute for the health anxious person means definitive, self-verified feedback of a sort that is easily achieved for other anxieties may be available only on a very long time scale for this one.

For this reason it may be that health anxious people need to be taught less threat non-existence and more threat acceptance than those with other forms of anxiety get. Be that as it may, the long timescale for feedback makes some of CBT's and MCT's techniques for reality

testing difficult to apply in hypochondria. By the time the patient is able to fill in the blanks in the reality script with definite and self-verified results, those results are often irrelevant to the current question of whether he has an illness, even the very same illness. Though reality-testing is challenging, CBT's targeting of the patient's substantive beliefs about illness does address the very real question whether worry is appropriate by making one's judgment of the probabilities of illness more accurate. MCT complements this by targeting thinking processes that are sustained by beliefs about thinking, and the successful MCT patient will regain the important ability to turn thinking off, but on its own it will not improve the patient' ability to judge when the substantive facts make this appropriate or not.

RCT complements both of these methods by making use of a so-far untapped resource, the fact that in resisting reassurance the patient is making a metacognitive presumption that he has reliability, even expertise, in judging whether symptoms are serious. RCT asks the patient to investigate substantive and individual meta-cognitive questions about his own reliability for making substantive judgments about illness. The calculation of reliability is not undermined by a long timescale, and the judgment about one's reliability is relevant to one's current judgment that one is ill because the latter is made by the same judge. Moreover, the mechanical and self-verified qualities of the method make its conclusions hard to resist by means of skewed interpretation and faulty memory. It has the potential to improve self-knowledge of whether one is ill or not by improving self-knowledge of reliability about such matters.

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