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Hope, Health, and the Climate Crisis

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ABSTRACT

Hope has been viewed since ancient times as a bedrock of human thriving, and contemporary evidence suggests that hope is a determinant of health. However, the climate crisis, in addition to its many direct and indirect threats to human health, erodes hope in many people. This article describes medical aspects of hope and hopelessness, including clinical definitions, measurement methods, and treatments. It then touches on literary and philosophical perspectives on hope, from both ancient and modern sources, emphasizing the centrality of hope to human thriving. Finally, it applies these clinical and cultural perspectives to the climate crisis, arguing that health professionals should propel hope in themselves, their patients, and the broader society, and drawing on clinical insights to propose concrete ways of doing so.

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Contemporary news is grim. The planet is warming, species are going extinct, chemicals contaminate ecosystems and our bodies, weather disasters are regular occurrences, and key resources such as fresh water and soil are becoming scarce in many places [1,2]. We are transgressing planetary boundaries [3] and approaching tipping points that could trigger irreversible, catastrophic global changes [4]. Governments, private firms, and individual consumers, as if unaware of the urgency of the challenge, are not responding fast enough [5]. These planetary changes threaten human health in far-reaching ways [1,2]. Beyond the direct and indirect health impacts there is a less obvious casualty: hope. With the planet's future in doubt, hope is precarious. Despair beckons.

Hope is very much a health concern. This article describes medical aspects of hope and hopelessness, including clinical definitions, measurement methods, and treatments. It then touches on literary and philosophical perspectives on hope, from both ancient and modern sources, emphasizing the centrality of hope to human thriving. Finally, it applies these clinical and cultural perspectives to the climate crisis, arguing that health professionals should propel hope in themselves, their patients, and the broader society, and drawing on clinical insights to propose concrete ways of doing so.

Hope, hopelessness, and health

There is considerable reason to believe that hope promotes health and well-being, and that hopelessness is toxic. Evidence suggests that hopeful people feel better [6–8], weather stress more

successfully [9,10], and live longer [11,12], even when diagnosed with serious diseases [13–16]. Hope has been associated with cognitive flexibility and creativity [17] and with academic achievement [18]. Hopelessness, on the other hand, is associated with increased risk of developing hypertension [19] and atherosclerosis [20], of myocardial infarction and cancer [11,21], of anxiety [22] and depression [23], of cognitive decline [24], and of more severe PTSD symptoms [25]. Among young people, hopelessness predicts violent behavior, substance abuse, and early sexual activity [26–28]. Hopelessness may predict endothelial dysfunction [29], poor outcomes following angiography [30] and stent placement [31], and poor prognosis in cervical cancer patients [32,33]. Hope may account, at least in part, for the substantial health benefits of the placebo effect [34–36]. Little wonder that hope has been called “a therapeutic tool” [37] and the maintenance of hope a medical responsibility [38].

Nevertheless, health professionals often overlook the power of hope. Over a half century ago, psychiatrist Karl Menninger observed that “we doctors are so schooled against permitting ourselves to believe the intangible or impalpable or indefinite that we tend to discount the element of hope, its reviving effect as well as its survival function.” [36, p 486] Hope may be an under-rated health asset.

But what is hope? And what is hopelessness?

Hope

Hope and hopelessness are elusive concepts to define and operationalize. One standard definition of hope is “the perceived capability to derive pathways to desired goals, and motivate oneself via agency thinking to use those pathways” [39]. This definition contains three elements: goals, pathways, and agency. *Goals* are mental targets, intrinsic to the act of hoping. *Pathways* are routes to achieve desired

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Table 1
Snyder's Hope Scale [42]

Agency thinking	Pathways thinking
<ul style="list-style-type: none"> • I energetically pursue my goals. • My past experiences have prepared me well for my future. • I've been pretty successful in life. • I meet the goals that I set for myself. 	<ul style="list-style-type: none"> • I can think of many ways to get out of a jam. • There are lots of ways around any problem. • I can think of many ways to get the things in life that are most important to me. • Even when others get discouraged, I know I can find a way to solve the problem.

goals, together with the ability to envision and generate those routes. Agency is the capacity to activate those pathways, to strive actively to reach goals.

Several clinical measures of hope were published beginning in the 1970s [40,41]. For example, Snyder's Hope Scale, proposed in 1991 for use in clinical research, consists of four questionnaire items measuring agency thinking and four measuring pathways thinking [42] (Table 1).

Most definitions of hope also include an element of *expectation*, and an implicit element of *probability* [43]. A person who hopes for something must believe that something to be possible—but not inevitable [44]. It makes little sense for me to hope to live 1,000 years—an outcome with a probability of zero. Nor does it make sense for me to hope that the sun will rise tomorrow—an outcome with a probability of 100%.

These definitions and measures frame hope primarily as a cognitive process, but hope is likely multidimensional [40,45,46]. The cognitive construct is clear: I hope my bicycle won't be stolen, so I lock it up, or I hope I'll make the train on time, so I leave early for the station. There are also affective or emotional aspects of hope: I'm nervous and I hope I won't make a fool of myself before an audience, or I'm lonely and I hope somebody will befriend me. Hope may be dispositional—a feature of some personality structures [47]. People exist on a spectrum from high-hope to low-hope [39].

Hope is different than optimism [48]—a distinction that dates from German philosopher Ernst Bloch's magisterial mid-20th century three-volume *The Principle of Hope* [49]. As a team of psychiatrists has written, "Optimism is an individual's confidence in a good outcome, whereas hope is a goal-oriented way of thinking that makes an individual invest time and energy in planning how to achieve their aims" [37]. Environmental thinker David Orr writes that "Hope is a verb with its sleeves rolled up. Hopeful people are actively engaged in defying the odds or changing the odds. Optimism leans back, puts its feet up, and wears a confident look" [50]. This underscores that *action* is intrinsic to hope. Indeed, an important clinical finding—and one with relevance to climate change—is that greater hope predicts greater problem-solving ability [51] and constructive, engaged goal-seeking behavior [52].

Hope is not static. Hope is reinforced when a person consistently achieves goals, and hope dwindles when goal achievement is repeatedly thwarted [39].

Much of the medical literature on hope has emerged from the fields of oncology and palliative care. For patients confronting a grim prognosis, hope is highly salient; they (and their families) cling to hope [53]. That said, they may scale back their hopes. Instead of hoping to write that great novel or summit Mount Everest (or survive a terminal illness), a patient's hope may center on resolving a family conflict, visiting a beloved park, or attending a grandchild's graduation [54].

Patients may unrealistically hope for a cure, even against all odds; this is sometimes called "false hope." Psychologist Seymour Epstein, writing of his wife's (ultimately successful) struggle with cancer, offered a nuanced and practical view of false hope:

All hope is "false" in the sense that what is hoped for may not materialize. At the time of hoping one cannot know the outcome. If the

hope serves to improve one's quality of life and does not cause one to avoid taking adaptive action when it is possible, nor be resentful when the hoped-for outcome does not materialize, then it is obviously desirable [55, p xxv].

Withholding or whitewashing bad news may encourage harmful false hope and ultimately despair [35,56]. Historically, physicians (and family members) in many cultures concealed serious diagnoses from patients, in an effort to protect patients from losing hope [57]. Contemporary medical ethics, with its core principle of respect for patient autonomy, rejects this practice [58]. Full and truthful disclosure, even of a poor prognosis, is required. Caregivers must shoulder the difficult task of reconciling full disclosure with sustaining the patient's sense of hope [53]—a task that requires careful, sensitive, and empathetic delivery of bad news, using patient-centered communication techniques [56,59]. This is relevant to communication about climate change, as discussed below.

Hopelessness

What about hopelessness? There is a large clinical literature on hopelessness, much of it from the fields of psychology, psychiatry, and geriatrics. Alloy and colleagues defined hopelessness as "negative expectations about the occurrence of highly valued outcomes and feelings of helplessness about changing the likelihood of occurrence of these outcomes" [60, p 7]. Hopelessness may be a temporary mood state reflecting circumstances, or a more enduring dispositional trait, a habitual outlook on life [61]. Hopelessness is commonly equated with despair (whose Latin origin, *de sperare*, means "down from hope").

The concept of hopelessness is invoked in many ways. "Hopeless" may refer to a patient's self-assessment, usually elicited by interview. A "hopeless case" may be a label applied by a clinician, reflecting the clinician's assessment of prognosis more than the patient's frame of mind. A predicament or challenge may be described as hopeless, as in a "hopeless situation". "Hopeless" may even be used to describe a place, such as a neighborhood afflicted with disorder, high unemployment, and deprivation, that erodes hope in people who live there [62].

In the 1970s, psychiatrist Aaron Beck proposed that hopelessness consists of three dimensions: *cognitive* (low future expectations), *affective* (negative feelings about the future), and *motivational* (loss of motivation) [63]. The 20-item scale Beck Hopelessness Scale (BHS) became a standard in clinical research, although subsequent investigators found that subsets of items from the BHS were simpler to administer and correlated well with the full scale [64–66]. A typical approach [65,66] is to utilize just four items from the BHS (Table 2):

Table 2
Condensed version of Beck Hopelessness Scale [65,66]

• In the future I expect to succeed in what concerns me most.	(positive responses indicate <i>less</i> hopelessness)
• I have great faith in the future.	
• My future seems dark to me.	(positive responses indicate <i>more</i> hopelessness)
• I just don't get the breaks and there is no reason to believe I will in the future.	

Clinical research using such measures has found that hopelessness is somewhat associated with, but distinct from, depression [67,68]. Hopelessness more strongly predicts suicidality than does depression [69,70].

Clinical care

In the clinical setting, treatment aims to help patients move from hopelessness to hope by helping them [71]:

- Conceptualize reasonable goals more clearly,
- Identify numerous pathways to goal attainment,
- Summon the energy to maintain pursuit, and
- Reframe obstacles as challenges to be overcome.

Standard treatment includes cognitive behavioral therapy (CBT) with or without antidepressants [22,72]. Life-review therapy, an approach developed for older adults, guides patients through recollecting and reinterpreting experiences over the course of their lives, and may help to reduce hopelessness [73], although rigorous supporting evidence is lacking. Narrative approaches—in which therapists tell true or fictional stories whose characters demonstrate goal-setting, pathways, and agency—are also used [71].

Treatment approaches for individual hopelessness do not map precisely to a collective predicament such as climate change that requires collective solutions. However, as discussed below, clinical insights may be relevant to the hopelessness associated with climate change.

Hope and the human condition

Hope and hopelessness are of far more than clinical interest. Hope has long been seen as a pillar of human existence, as the last best succor when we are deprived of all else. This perspective is vividly expressed in theology, literature, and the arts. In Dante's *Inferno*, the hapless arrivals at the gates of Hell were not required to surrender their money, their status, their children, or the keys to their cars; they were commanded to "Abandon hope." For Martin Luther, "Everything that is done in this world is done by hope," and for Dostoevsky, "to live without hope is to cease to live." Claudio, in Shakespeare's *Measure for Measure* (Act 3, scene 1), observes that "the miserable have no other medicine, but only hope." "Lord save us all," wrote humorist Mark Twain "from old age, broken health, and a hope-tree that has lost its faculty of putting out blossoms" [74, p. 244].

But an equally robust tradition has viewed hope as a fool's errand—a futile gesture or even a delusion in a world in which fate, or the gods, determine all outcomes. Hope was for Aeschylus "the food of exiles" and for Euripides "man's curse." "Worse than despair, worse than the bitterness of death," wrote Shelley, "is hope" [75, Act V, Scene 4, lines 98-99]. Nietzsche called hope "the worst of evils for it prolongs the torment of man" [76, p 102]. If dreadful events seem unstoppable—if people can neither see pathways to a better reality nor feel agency in achieving that better reality—then hope rings hollow. The indifferent fate that unsettled classical writers has obvious parallels with today's changing climate.

But positive and negative views of hope are not mutually exclusive. F. Scott Fitzgerald famously wrote that "The test of a first-rate intelligence is the ability to hold two opposing ideas in the mind at the same time, and still retain the ability to function. One should, for example, be able to see that things are hopeless and yet be determined to make them otherwise" [77]. Antonio Gramsci is said to have endorsed "pessimism of the intellect, optimism of the will." Reconciling this contradiction in the manner of Fitzgerald or Gramsci is also relevant to climate change, as discussed below.

Hope in the Anthropocene

Much contemporary discourse, responding to the planetary trends outlined above, seems bent on replacing hope with despair. Recent years have seen an explosion of "doomer" literature [78–82]. A rapidly emerging genre of popular culture—climate fiction, or "cli-fi"—serves up films, books, and short stories brimming with apocalyptic imagery [83,84]. "It is worse, much worse, than you think," writes journalist David Wallace-Wells [78]. "There will be a near-term collapse in society," asserts Professor Jem Bendell [79]. "We live today," intones writer Roy Scranton, "in the long, dim days of decline and collapse and retrenchment and violence and confusion and sorrow and endless, depthless, unassuageable human suffering" [82, p 73]. Novelist Jonathan Franzen concurs: "The climate apocalypse is coming," he writes, "To prepare for it, we need to admit that we can't prevent it" [81]. In case there were any doubt about how to process all of this, ecologist Guy McPherson argues for going "hope-free:" "...hope is a mistake and a lie. Clinging to hope is a mistake, and promulgating hope is a lie" [80, p 8].

These narratives have an impact [85]. Media accounts increasingly describe people with anxiety, despair, and hopelessness, linked to concerns about climate change. Some young people are forgoing higher education, believing that impending catastrophe makes education pointless (one slogan is "Why should I study for a future I won't have?" [86]). Some young people are opting not to have families—one of the most elemental expressions of human hope—not wanting to bring children into an apocalyptic world [87,88]. In a 2020 survey of child and adolescent psychiatrists in England, over half reported treating young people distressed about the climate crisis, with complaints including hopelessness [89]. In a 2021 survey of 10,000 young people (aged 16-25) in ten nations, 75% endorsed the statement that the future is frightening, 56% that humanity is doomed, 55% that what they most value will be destroyed, and 52% that their family security will be threatened; majorities ranging as high as 68% reported feeling sad, afraid, anxious, powerless, and helpless [90].

The counter-narrative to these hopeless narratives is hope. There are at least three compelling reasons to propel hope. And we know much about how to do so, drawn in part from health evidence.

Justification for hope in the face of the climate crisis

One reason to propel hope is that **hopeful people feel better than hopeless people**. Relieving people's pain—a central calling of health professionals—is intrinsically a worthy goal.

A second reason to propel hope is that **hope leads to action**, while despair leads to disengagement and withdrawal. Confronting the climate crisis requires action. People need to pressure governments and private firms to transition to a post-carbon economy. People with high-consuming lifestyles need to interrogate, and when appropriate revise, their behavioral choices. Well-informed people need to "spread the word" regarding climate science and associated threats and opportunities. These tasks all require constructive engagement—for which hope is prerequisite [91,92].

A third reason to propel hope is that **hope is empirically justified**. The dire predictions of Bendell, Franzen, and Wallace-Wells notwithstanding, there is no basis for concluding now that our fate is sealed. Climate scientist Michael Mann calls for "hope that is grounded in entirely legitimate and defensible reasons for cautious optimism that the worst can still be averted" [93, p 223]. Arrayed against the frightening trends acknowledged above are many highly encouraging developments. Technology is advancing rapidly; an example is batteries that enable electrification of vehicles and transition to renewable electricity. The cost of key technologies is falling fast; renewable electricity is now cheaper than fossil electricity in much of the world [94]. Renewable energy use—a key to reducing greenhouse gas

emissions—is growing exponentially [95]. Policy is maturing at the national and subnational levels, ranging from national net-zero commitments to local infrastructure regulations. Private sector initiatives are proliferating, ranging from investment banks ending support for Arctic oil drilling to motor vehicle manufacturers phasing out internal combustion vehicles. Activism is blossoming, especially among young people. Public opinion is shifting; in the U.S. climate denial is giving way to concern [96]. Perhaps most relevant for health professionals, the health benefits of climate action are now well established [97], meaning that climate action offers the prospect of opportunity, not sacrifice and deprivation.

Strategies for propelling hope

If propelling hope is not only legitimate, but also necessary, how should this be done? I suggest several strategies.

Tell the truth

As in clinical settings, the facts, even when difficult to hear, should not be concealed, downplayed, or exaggerated. That said, hard truths need to be delivered with nuance, balance and sensitivity to the audience. With respect to climate change, two linked truths must be told: we confront a crisis; and there is much we can do. In clinical settings, patients want a balance between honesty and hope [53] a good model for truth-telling regarding climate change.

Telling the truth means recognizing, naming - and countering the uncomfortable reality of deliberate disinformation promoted by vested interests [98,99]. It also means acknowledging uncertainty, including uncertainty about the odds of success in the fight against climate change. As author Rebecca Solnit writes, “We don’t know what is going to happen, or how, or when, and that very uncertainty is the space of hope” [100, p xxi],

Acknowledge grief

Experts advise that a starting point in coping with loss and hopelessness is acknowledging those feelings. A standard text on grief, for example, identifies accepting the reality of loss, and processing the pain of grief, as a grieving person’s first two tasks [101]. This is true for many kinds of grief—not only the loss of a loved one, but also grief for a lost beloved place or the entire planet (“solastalgia” [102] or “ecological grief” [103]), grief for a past that felt stable, pristine, and certain, and grief for a future that once seemed rich with unlimited possibility [104].

Joanna Macy and Chris Johnstone, in their book *Active Hope*, advocate what they call “honoring our pain for the world” [105], “When loss remains unspoken, neither grieved nor worked through,” writes psychotherapist Rosemary Randall, “then change and adjustment cannot follow” [106]. Denying the despair that climate change may engender, according to these writers, creates a barrier to acknowledging upsetting information, undermines confidence in confronting it, dampens personal energy, and triggers emotional withdrawal. Acknowledging the pain, on the other hand, brings a sense of relief, hope, and increased determination and capacity to act.

Envision success

A goal is intrinsic to the process of hoping [39]. In the context of climate change, this corresponds to a vision of a world in which humanity lives well within planetary boundaries and in harmony with natural systems, in which the climate is stabilized at a level compatible with continued human thriving, in which resources are equitably distributed and sustainably used, and in which the future is secure. There are many articulations of such a vision, such as the Great Turning described by David Korten [107] and Joanna Macy [108], Paul Raskin’s Great Transition [109], Kate Raworth’s doughnut economy [110], Planetary Health [1,2], and ecological civilization

[111]. A compelling vision of human thriving in a post-carbon world can provide a foundation for hope.

Identify pathways to success

Pathways thinking, a key element of hope, identifies routes to achieve a desired goal. In the context of climate change, this corresponds to practical strategies for reducing greenhouse gas emissions, enhancing carbon sequestration, protecting and restoring ecosystems, reducing species extinctions, and stewarding resources such as fresh water, soil, and land, in ways that promote human health and equity—as well as adapting to unavoidable climatic change. Some pathways emerge from technical innovations such as solar panels, wind turbines, and advanced batteries [112]. Others consist of policies such as eliminating perverse incentives such as fossil fuel subsidies, internalizing costs, and pricing carbon. Still others lie in culture change. It is difficult to sustain hope without knowing that such pathways exist and function effectively.

Success stories can help spotlight pathways that work. Media coverage of climate change has tended to emphasize threats more than solutions [113,114]—contributing to what has been called a “hope gap” [115]. In doctor-patient communication as in public health risk communication, people find frightening or threatening messages unpersuasive (or even repellent) in the absence of recommended actions to reduce the threat (called “response efficacy”) [116,117]. Positive messages and stories are compelling. For example, one study found that an image of a wind turbine was more effective than an image of a massive flood in creating hope and promoting constructive engagement with climate change [118]. Approaches such as “solutions journalism”—journalism that covers not just problems, but responses, including evidence of effectiveness—are likely to contribute to hope by showcasing pathways to success [119].

Empower people to act

Hope also requires *agency*—the capacity to strive actively to reach goals [39]. People should be encouraged and empowered to act; action begets hope (and hope begets action [120]). Professor Thomas Homer-Dixon highlights the distinction between “hope that,” which he calls “a passive and timid locution,” and “hope to,” which, he writes, is “active and bold” [121, p 61]. Both for the good of those doing the hoping, and for the good of the planet, action is indispensable.

What kind of action is best in the context of climate change? There is a debate between proponents of system change and proponents of individual lifestyle change. Those who favor system change argue that lifestyle change (alone) is insufficient to address the climate crisis, and that its futility can actually erode hope. Moreover, according to this view, excessive focus on how individuals eat, travel, and consume could let major carbon emitters off the hook, and “nudge out” needed support for system change [122]. Those who focus on lifestyle, on the other hand, argue that behavior change (especially among high-consuming people in wealthy countries) is indispensable to addressing the climate crisis [123], and that changing one’s behavior reinforces a sense of personal efficacy, agency thinking, and therefore hope [124]. This is an instance of “both and,” not “either or.” Personal action can be directed at lifestyle choices and advocacy for system change, with the two likely to reinforce each other [125] and to promote hope.

Climate activism has blossomed in recent years, with the emergence of high-profile groups such as 350.org, the Sunrise Movement, Youth Strike for Climate, Fridays for Future, and Extinction Rebellion. Many of these are inspired and led by young people. Studies suggest that such activism is effective in building hope, and in reducing anxiety and despair [126,127]. There is likely a virtuous cycle: activism nurtures hope, and hope nurtures activism [128].

The scale of action needs to be manageable. Setting out to keep global heating to 1.5°C likely feels daunting; taking action to design

and build a zero-emissions building, or block construction of a nearby oil refinery, or pass a local ordinance banning new residential gas hookups, has the potential to engage people's minds, hands, and hearts at a comprehensible and tractable scale (David Orr, personal communication, 17 April 2021). Guidelines for such action, addressing both mitigation and adaptation, are available [129]. The blossoming of climate action at the local level affords many opportunities for people to engage actively [130].

Cultivate solidarity

Climate action is rarely an individual undertaking. Collective action is itself beneficial. Social connections promote health, as exemplified by patient support groups [131] and social capital more broadly [132]. These benefits may include building hope. For social scientists, "collective hope" is hope that is shared by many people, and that both facilitates and results from concerted action [133]. Bonding with others, the camaraderie of team effort, and the satisfaction and reinforcement of shared success, are pillars of hope [134,135].

Make room for joy

Glum undertakings are unlikely to propel hope. Joyful undertakings lift the spirit. Climate scientist Kim Nicholas, the author of *Under the Sky We Make*, declared of climate action, "It has to be fun! ... It doesn't have to be all about sacrifice and a 'hair shirt' approach to life. ... There is so much joy in figuring out what really matters to you, living in line with those values and being part of a community of people who support each other. ..." [136]. Laughter, too, is good for people [137] and may open the door to hope. Happiness and hope are associated, probably in reciprocal ways such that each promotes the other [138]. Those who want to propel hope have every reason to embrace laughter and joy.

Conclusion: Hope and health in the Anthropocene

Grim news about the planet abounds. The challenge of our time is to confront, address, and reverse the damage humans have done to the planet, to assure health, well-being, and thriving for people today and for future generations. We must nurture and sustain hope if we are to meet this challenge.

Faced with the threat of climate change, health professionals can care for ourselves, our patients, and our communities, by resolving to nurture hope, and by marshalling evidence, empathy, and fortitude in doing so as effectively as we can.

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