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SIMPLIFIED MODELS OF THE RELATIONSHIP BETWEEN HEALTH AND DISEASE

ABSTRACT. The concepts of health and disease are crucial in defining the aim and the limits of modern medicine. Accordingly it is important to understand them and their relationship. However, there appears to be a discrepancy between scholars in philosophy of medicine and health care professionals with regard to these concepts. This article investigates health care professionals' concepts of health and disease and the relationship between them. In order to do so, four different models are described and analyzed: the ideal model, the holistic model, the medical model and the disjunctive model. The analysis reveals that each model has its pros and cons, and that health care professionals appear to apply more than one models. Furthermore, the models and the way health care professionals' use them may be helpful for scholars in philosophy of medicine with regard to developing theories and communicating them to health care professionals.

KEY WORDS: concepts, disease, health, models

Disease and health are among the most basic concepts¹ in modern health care. Their uses are multifarious and their functions manifold. They are key concepts in defining the purpose of health care activity, such as “curing disease and promoting health,” and they are principal in setting its limits. However, as debates of the purpose and limits of health care are related to fundamental issues of “the good life,” they are controversial. This is probably why DISEASE and HEALTH have been subject to extensive philosophical debate.²

This philosophical debate has provided some theoretically highly interesting definitions of core concepts to health care and has contributed with some valuable distinctions between concepts such as illness, disease, sickness, malady, health, wellbeing, welfare, need, capacity, and ability. However, it appears that these theories and distinctions have not yet had a major impact on health care professionals' way of thinking and acting. One reason for this may be that they believe that these concepts are needed neither for reflection nor for action.³ Another reason may be that the philosophical debate has

been isolated from practice, or that the diffusion from theory to practice is slow. Yet another reason may be that the distinctions made in theory do not reflect practice. Many languages, such as, e.g., Germanic languages lack the richness of English, and want terms like 'sickness,' 'illness,' and 'malady.' But even among English speaking health professionals these terms are not used in a strict manner and in accordance with theory.

In any case, 'health' and 'disease' tend to be the most prevalent terms expressing two of the most basic concepts of health care professionals. Furthermore, it appears that health care professionals' concepts of health and disease tend to have much broader intensions and correspondingly more comprehensive extensions than what is reflected in the theories of scholars in philosophy of medicine. How, then, are we to understand health care professionals' concepts of health and disease and what is the relationship between them? These are the key questions of this article. Because HEALTH and DISEASE are the subject matter to be investigated, the article will embark without any initial definition of these concepts.

But how then, are we to scrutinize health care professionals' conceptions of HEALTH and DISEASE? If health care professionals' concepts deviate from those defined in theory, if we have no initial definition of them, and if we do not intend to perform qualitative interviews of health care professionals' conceptions – how can we understand and analyze their concepts? One way is to analyze the models that health care professionals use in their daily practice and when they explain their concepts. This article will set out investigating some models of the relationship between health and disease, and scrutinize their relevance and challenges.

The models are simplified models, as they are coarse and do not contain the interesting and important distinctions made in many theories. However, this does not mean that the concepts that they model are simple. On the contrary, as the models are simplified, the intensions of the concepts they model tend to be broad, and the corresponding extensions may be by far more comprehensive than of theoretical concepts. Hence, when a health care professional uses the term 'disease', it may cover the extensions of terms such as 'illness', 'sickness,' and 'disease' when used by a scholar.

The initial step in the analysis of the relationship between HEALTH and DISEASE will be to investigate four models for this relationship: the ideal model, the holistic model, the medical model, and the disjunctive model.

THE IDEAL MODEL: HEALTH AS THE ABSENCE OF DISEASE

The simplest model of the relationship between the two concepts is that HEALTH is given by negation of DISEASE. I will call this model the ideal model. If you are healthy, you are not diseased, and conversely, if you are diseased, you are not healthy. This ideal model of the relationship between HEALTH and DISEASE is prevalent among health care professionals and lay people as well. “Diseases are derangements of the structures and functions of the parts of an individual human body. If they are not deranged, they are healthy. Every textbook of human anatomy or physiology is believed to be a portrait of human health. Normality is the absence of abnormality.”⁴ The ideal model is also expressed in ordinary language: we talk about dis-ease, dis-ability, dys-function, dis-order, un-pleasantness, and the model can be traced back to antiquity. In the *Metaphysics* Aristotle states that it is by the absence of health that disease exists (1032b4–6), and that the art of healing needs health to know what to aim at (1032b13).

Among health care professionals subscribing to the ideal model, disease most often is regarded to be the primary concept.⁵ However, both health and disease could in principle be the primary concept, and in ordinary language, EASE, as an equivalent to HEALTH, appears to be primary to its negation DIS-EASE.

However, there appear to be some difficulties with the ideal model. Health care personnel frequently encounter suffering persons, but where they cannot offer any help in terms of diagnosis or treatment. That is, in practical life an absence of disease does not imply that a person is healthy. HEALTH tends to have content beyond the negation of DISEASE. In other words, although the models are simple in order to be convenient in clinical practice, the ideal model tends to be too simple.⁶

THE HOLISTIC MODEL: HEALTH AS MORE THAN THE ABSENCE OF DISEASE

One way of addressing this challenge has been to introduce a different model of the relationship between HEALTH and DISEASE, according to which health goes beyond the criteria of absence of disease. The WHO definition of health as “a state of complete physical, mental, and social wellbeing and not merely the absence of

disease or infirmity” supports this model. The point is that there are criteria to health other than absence of disease. Such criteria might be wellbeing, happiness, human flourishing, ability to realize (vital) goals, or to promote human functioning as a whole. According to such criteria, this model can be called a “holistic model.”

In other words, the holistic model says that non-disease is not a sufficient condition for health. It follows logically from this that you can be both non-diseased and not healthy at the same time. Thus, the model can explain why it does not necessarily mean that you are healthy if no disease has been identified. The point is that there are other criteria for health than the criterion of non-disease.

According to the holistic model, health is the primary concept. Professionals involved in health promotion and rehabilitation in all levels of health care tend to have affinity to this model, as well as many professionals in primary health care. They face situations where they think of persons as non-diseased, but not healthy, and need and use a model that handles such cases. Moreover, the model provides a goal for health care that is related to human good, independent of what is bad.

However, there appear to be difficulties embedded in this conception of health and disease as well. Not being healthy is not a sufficient criterion for the attention of health care professionals. Physicians frequently encounter people that are apparently not healthy according to the holistic model, but whom they can offer no help. That is, the ideal model and the holistic model are not suitable in situations where the absence of health does not imply disease. Although these models are attractive for many reasons, they contradict basic conceptions of health care professionals and do not solve all their conceptual and practical challenges. Therefore we can identify a third model, which I have called the medical model.

THE MEDICAL MODEL: DISEASE AS MORE THAN THE ABSENCE OF HEALTH

According to the medical model of the relationship between the two concepts, disease goes beyond the absence of health. That is, in order to be diseased there are some criteria beyond not being healthy that need to be met. Normally such criteria are that disease has to be detected and identified in accordance with some standard methods, for example medical examinations, paramedical tests, or correspon-

dence to a set of symptom descriptions. That is, a person's condition falls under the concept of disease if the condition can be detected by medical methods.

In other words, the medical model says that non-health is not a sufficient condition for being diseased. It follows logically from this, that you can be both non-healthy and non-diseased at the same time. Hence, this model can explain why it does not necessarily mean that you are diseased if you are not healthy. The point is that there are medical criteria for what falls under DISEASE that are stricter than the criteria for what falls under non-HEALTH. According to the medical model, DISEASE is the primary concept, having the strictest criteria, and if disease is detected, the person is not healthy. The medical model appeals strongly to most health care professionals, as their education and practice extensively is concerned with professional criteria of what falls under DISEASE.

It is worth noting that there are some similarities between the medical model and the holistic model. Both explain situations that challenge the ideal model, that is, both explain the situation where one is neither diseased nor healthy, and both introduce special criteria to one of the basic concepts of health care, that is, criteria for what is disease and what is health. The medical model points out that the absence of health does not qualify for disease, whereas the holistic model emphasizes the fact that the absence of disease does not qualify for health. However, most professionals regard the medical model and the holistic model as incompatible. The differences between them relate to the special criteria and to which concept is given primacy (DISEASE or HEALTH).

There is also another aspect of the three models that is important. The ideal model presupposes that health and disease are both exclusive and exhaustive concepts. If you are not diseased, you are healthy, and if you are not healthy, you are diseased. The medical model and the holistic model, however, do presume exclusiveness, but not exhaustiveness. If you are diseased, according to the holistic model, you are normally not healthy. Conversely, many would argue, if you are healthy according to the medical model, you are not diseased. That is, neither the medical model nor the holistic model can explain situations of both health and disease being present at the same time.⁷

However, are health and disease exclusive concepts? Do we not know of people we could say that are both healthy and diseased? In other words, is it not so that health is not a sufficient condition for

non-disease, and that disease is not a sufficient condition for non-health? Health care professionals quite often meet people whom they reckon to be healthy even if they have a disease. For example, a person who gets a (true) positive result from a genetic test, but who has no experience of disease, is he not healthy? Conversely, a person who feels helpless or unhappy without there being any specific reason, and who due to this feeling is not able to fulfill his obligations to his family or employer, what kind of disease does he have?

These situations are not easily resolvable within the framework of the ideal model, the holistic model or the medical model. What then, does this mean? Are health and disease independent concepts? Is this problem not only a result of the fact that the opposite of HEALTH is ILLNESS, and not DISEASE?

ILLNESS as the Opposite of HEALTH

Theoretically there are many convincing arguments that the opposite of HEALTH is ILLNESS, and not DISEASE. Opposing HEALTH with ILLNESS would also explain many of the challenges that follow from the models discussed above.⁸

However, the models are to represent health care professionals' conceptions of their key concepts, and DISEASE is held to be more prominent than ILLNESS by most professionals. One of the reasons for this, I believe, is that health care professionals are quite aware of the fact that they cannot help people with all the state of affairs that they conceive of as illness. Hence, their focus on disease is a way to delimit their assignment. This is why they study and classify disease, and not illness. Furthermore, one can think of situations falling under the concept of illness, which most professionals would characterize as health, e.g., shyness or a general feeling of dissatisfaction or incompetence. This would bring us back to the challenges discussed above, even if ILLNESS was the key concept to health care professionals, and not DISEASE.⁹ The point here is that it appears to be more urgent for health care professionals to differentiate between health and disease, than between health and illness, and that the models above describe different strategies of doing this.

Concepts and models

What has been argued so far is that health care professionals' concepts of health and disease have broad intensions and correspond to

comprehensive extensions. One way to explore these concepts and their relationship has been to analyze simplified models of health and disease.¹⁰ The models tend to cover many health care professionals' conceptions and are helpful in highlighting the logical relationship between HEALTH and DISEASE. The models are also useful for explaining some of the challenges that health care personnel face when encountering and communicating with patients. However, the models are not good enough, because they do not cover all the challenging situations that health care professionals face. In particular they do not address situations of non-disease-and-non-health or disease-and-health which health care professionals tend to encounter quite frequently. That is, the situations that health care professionals meet do not fall under the concepts of HEALTH and DISEASE according to the models described. Furthermore, although the models are useful for understanding health care professionals' broad concepts of health and disease and their logical relationship, they are incomplete.

This leaves us in an uncomfortable position. We can of course conclude, as many scholars will do, that health care professionals' broad conceptions are inadequate, and that we need to make conceptual distinctions related to elaborate theories. However, the only thing we have shown is that models that cover important aspects of health care professionals' concepts of health and disease are insufficient. There may be other models that are more appropriate.

THE DISJUNCTIVE MODEL

The analysis of the different models shows that the concepts of health and disease are not exhaustive. Health care professionals experience that people can be neither diseased nor healthy. If the concepts are to cover situations that frequently occur in practical health care, then the concepts of health and disease cannot be defined in terms of each other. One way to handle this is to say that HEALTH and DISEASE are not inter-definable.¹¹ Additionally, if one accepts that people can be both healthy and diseased, the concepts are not exclusive either.

Many health care professionals would argue, however, that health and disease are corresponding concepts.¹² Both are concepts that are prevalent in health care, and in some way disease tends to reduce health, and health is not a prominent characteristic of diseased people. However, this is not always so. Hence, there are some aspects of the concepts that make them different and partly independent.

According to the disjunctive model HEALTH and DISEASE are opposite and partly independent concepts. This means that if a situation falls under the concept of health, it is not likely, but possible, that it falls under the concept of disease. Correspondingly, it allows situations that fall under both HEALTH and DISEASE. Additionally the model addresses situations that fall neither under HEALTH nor DISEASE.

Thus, the disjunctive model covers the “hard cases” that health care professionals face better than the other models. Why then bother with the other models at all? Why not go directly from the complex set of criteria ($\sim D \wedge \sim H$, $\sim(D \vee H)$, $H \wedge D$) to the disjunctive model? There are several reasons for this. Firstly, the ideal model, the holistic model, and the medical model tend to be very much alive among health care professionals. In debates about fibromyalgia, myalgic encephalomyelitis, and whip-lash the controversies between professionals can be analyzed in terms of these models.

Secondly, the models are different in complexity. As the ideal model has only two conditions, it is simple and straightforward. The holistic and the medical models are a bit more complex, addressing situations that are not disease, but still not health and that are not health, but still not disease, respectively. The disjunctive model is the most complex, additionally including conditions such as “health–disease.” Hence for most purposes, the ideal model is sufficient. However, some cases are covered only if we apply the holistic or the medical model, and in some cases we have to apply the disjunctive model. We do not want to make the world more complicated than necessary, and we do not discuss states such as “health–disease” or “non-health & non-disease” if we do not have to. Thus, there is a pragmatic reason for not abandoning the other models.

Thirdly, the three first models are much more clear and convenient with respect to handling the logical relationship between HEALTH and DISEASE. The disjunctive model is less conclusive with respect to this logical relationship. If a situation falls under the concept of health, it is not certain that it does not fall under DISEASE, although it is likely, and vice versa.

Additionally, as the holistic and the medical model (and most frequently also the ideal model) have identified a primary concept, this is much less obvious within the disjunctive model.

This means that the ideal model is logically different from the other models and that the holistic and the medical model are logically equivalent (see Figure 1). The difference between the latter two

models is their emphasis with respect to what they conceive of as the primary concept.

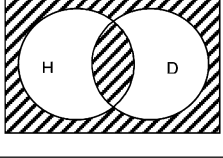
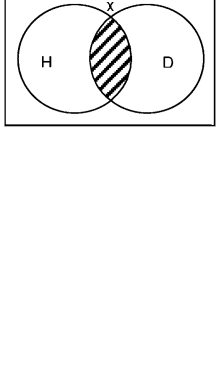
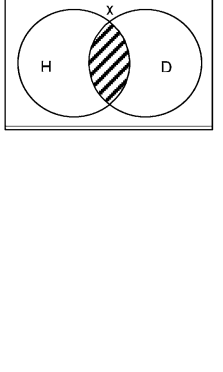
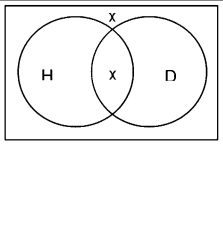
Ideal model	Everyone is either healthy or diseased HVD		Exclusive and exhaustive	H and D are contradictory
Holistic model	If you are healthy, then you are not diseased. H → ~D But it is not the case that if you are not diseased, then you are healthy. ~(~D → H)		Exclusive but not exhaustive	H and D are contrary, that is, one can be neither healthy nor diseased, but not healthy and diseased at the same time.
Medical model	If you are diseased, then you are not healthy. D → ~H But it is not the case that if you are not healthy, you are diseased. ~(~H → D)		Exclusive but not exhaustive	H and D are contrary, that is, one can be neither healthy nor diseased, but not healthy and diseased at the same time.
Dis-junctive model	No logical relationship		Neither exclusive nor exhaustive	H and D are neither contradictory, contrary or subcontrary

Figure 1. Outline of the relationship between HEALTH and DISEASE in the different models.

We now have to ask whether there is a primary concept within the disjunctive model. This is the question to be pursued for the rest

of this article. But how can we trace any differences when the logical relationship between HEALTH and DISEASE is much less clear? One way to pursue this is to investigate how health care professionals handle HEALTH and DISEASE in teaching and practice.

DISTINCTIONS BETWEEN HEALTH AND DISEASE

There are many differences that are relevant to the relationship between DISEASE and HEALTH: epistemological, taxonomic, etymological, experiential, evaluative, and practical. Let us investigate them, in order to see if these differences are relevant for the disjunctive model. Again, the perspective is from the point of health care professionals, and not scholars of philosophy of medicine.¹³

Epistemological differences

There appear to be epistemological differences between the concepts of health and disease. Disease is an explanatory concept (concerning physiological and psychological disorders), whereas health is not.¹⁴ Through their education, training, and practice medical professionals get to know about disease entities. They know the symptoms, the signs, and the causality of the paradigm cases. In other words, they are taught to recognize cases of disease.¹⁵ This does not apply to health. Health care professionals tend to conceive of disease as being caused, while health is not. That is, disease has etiology, whereas health has no etiology.¹⁶

It can be argued, however, that there are causes to health. Exercise, healthy food, and an active life without stress, all contribute to one's health.¹⁷ Against this, however, it can be maintained that exercise, food, and activity are aims in themselves, and not causes of health, or that they are means to fitness (and not health) or measures to avoid disease.

The difference with regard to etiology corresponds to the difference between physiology and pathology. It is argued that knowledge of disease precedes and generates knowledge of health – pathology is primary to physiology.¹⁸ This can be related to the ethical appeal in medicine: The sick person's plea for help appears to be more obligating to health care professionals than the search for knowledge of well-being and bodily functioning.

Taxonomic differences

Related to these epistemological differences, there is also a taxonomic difference between health and disease. Diseases are occurrent and classified, whereas health is not.¹⁹ There are taxonomies of diseases, whereas there is no classification of health.²⁰ That is, the extension of “disease” comprises many disease entities, whereas the extension of health does not. Likewise, we can show and recognize exemplars of disease, whereas we do not have exemplars of health.²¹

Etymological differences

In standard language we use negative prefixes to refer to human ailments, such as dis-ease, dys-function, dis-ability. Hence, if we turn to ordinary language in order to find the core of the concepts, we should conclude that health is the primary concept.²² If disease were the primary concept, “health” should be denoted as “dis-ailment”? This etymological primacy to HEALTH corresponds well with the ideal of defining negative notions by (negation of) positive ones, e.g., as with ‘dis-order.’

Many professionals would argue that they comprehend ‘disease’ as a complete term, and that they do not think of disease as a negation of ease. In Germanic languages this is not a relevant topic as the terms for disease do not contain negations. Furthermore, professionals argue that when it comes to defining terms such as “ease,” “ability,” “health,” “well-being” and “happiness,” we recur to negative notions such as disease. When ordinary people are asked “what is health?” they tend to speak about their ailments.²³ This makes the argument circular.

Correspondingly, it is argued that disease is definable, whereas health is an enigma, and as difficult to define as life itself.²⁴ This agrees well with the common opinion that “it is much less difficult to obtain agreement across social classes and different cultures about those states of the mind and body that constitute diseases than it is to secure agreement about which states are to be viewed as healthy.”²⁵ However, this is not convincing. Defining “disease” has shown to be an extremely difficult task. The concept of disease touches upon diverse challenging issues and it has an extremely wide and complex extension.²⁶ This may make it very difficult to define. Still health care professionals tend to be more preoccupied with having definitions of “disease” than of “health,” which has made more scholars try to define “disease” than “health.”²⁷

Experiential differences

Moreover, there tend to be experiential differences between health and disease as well. It is argued that disease is a new and sudden perceptible experience that engenders awareness of the body, whereas health is not. Disease is an occurrent phenomenon whereas health is dispositional,²⁸ we can feel disease, but health is not felt: it is the simple awareness of living.²⁹ Health is also conceived of as the ability to develop one's potentials, whereas disease is the lack of this ability. Furthermore, health can be described as being attuned to a situation, or conceiving of one's situation as home-like,³⁰ whereas disease is the opposite. Although this gives the impression that there is a primacy with respect to HEALTH, this is not obviously so.³¹ Important studies of the structure of people's normal experience is based on the experiences of people sufferings.³²

Furthermore, disease appears to be temporal, while health is atemporal.³³ It is possible to point out when disease starts and when it finishes, but this is not the case with health. We have to experience disease to experience health.³⁴

We can argue, however, that in some instances health is temporal.³⁵ In the case of food-poisoning, I may experience that 15 minutes after eating oysters, I start to sweat, feel sick, and vomit. It would be reasonable to say that my health was substantially reduced 15 minutes after eating the oysters. Correspondingly, I may have the experience, after two hours I feel much better, stop sweating, stop vomiting, and am healthy again. However, the phenomena that indicate the cessation and the re-establishment of health are pain and the recognition of an undesirable situation. Hence, even though both health and disease are temporal phenomena, the phenomena that mark the cessation and the re-establishment of health are negative and undesirable phenomena, such as pain, and not positive phenomena such as well-being and happiness. Thus, the temporality of health is given by notions that are applied to characterize disease, that is, the temporality of health rests upon disease and the ideal model. This is because there is a qualitative difference between pain and well-being.³⁶ Pain and suffering are asymmetric to pleasure and happiness.³⁷ This relates to a basic axiological difference between health and disease to be discussed in the following.

The relevance of the experiential difference between health and disease to health care professionals is not obvious. Although the difference is relevant to them as ordinary people, in their professional

life they have to recognize and identify the experiences of other people. Although there is a difference between their own experience of health and disease, it does not necessarily follow that there is a difference in the recognition of other people's experience of health and disease. However, the recognition of other people's experience may be influenced by their own experience.

Axiological differences

It is argued that HEALTH and DISEASE relate to values in different ways. According to many health care professionals health is value-laden, while disease is value-neutral. It can also be argued that HEALTH and DISEASE are both value-laden, but that they relate to different sets of values. For example, it is claimed that disease relates to biological values, whereas health includes moral values as it is the ultimate goal for human flourishing.³⁸ It has also been argued that disease concerns political, social, educational, aesthetic, and moral norms, whereas health concerns only aesthetic (and not moral) norms.³⁹

Others argue that the evaluative conceptions of health are fewer and much simpler than those of disease.⁴⁰ All our evaluative conceptions of health are of the same kind, and see health as something that should be promoted. Health is a value and an aim to our actions and activities. The evaluative role of disease, on the other hand, is much more complex, and according to some, is more central.

It is not obvious how to assess this argument. If our task is to explore the concepts of health and disease in order to assess which of them is the most suitable for framing the aim of life, we could easily run into an awkward argument. To claim that HEALTH is related to the aim of our activities and actions in general, but that it is the least suitable as the end of health care, would lead us to a *petitio principii*. The argument seems to presuppose that the evaluative issues of health care are complex, and that DISEASE therefore (being more complex) is most suitable for the task.

In any case, the evaluative asymmetry between the concepts of health and disease has been related to a general asymmetry in ethics.⁴¹ There is a higher "moral weight" attached to negative notions than to positive ones such as good and bad, health and disease, or life and death.⁴² It appears to be easier to agree upon the negative aspects of life than on the positive ones.⁴³ Thus, the differences between health and disease can be related to more general ethical distinctions.

Other practical differences

Moreover, there are practical aspects related to the ethical difference between the concepts. It is argued that disease is a concept that enjoins to action, whereas health does not.⁴⁴ There is an appeal to professional responsibility embedded in the concept of disease, whereas there appears to be no such responsibility connected to the concept of health.⁴⁵ The sick person's plea for help is more obligating than the promotion of well-being and bodily functioning. People's diseased conditions allow for experiments and research that are not allowed with healthy persons. Disease is an abnormal involuntary process that causes suffering, and that should be treated with medical means,⁴⁶ whereas 'health' is normally not defined by health care professionals' obligations. Hence, disease requires us to seek an explanation and to take curative action, whereas health does not. Another practical difference is illustrated by the application of technology. We tend to involve technology to achieve what we consider to be good in life, as well as to avoid what we conceive of as being bad. Technology is extensively applied in actions related to disease, but much less in relation to health.⁴⁷ Hence, technology points to a profound practical distinction between the concepts.

Two practical-epistemological arguments may be added. The comprehensive and expanding conception of risk in health care tends to expel the concept of health. We are not healthy any more, but only have risk factors to a greater or lesser extent. Moreover, history shows that analysis of HEALTH tends to end in analysis of DISEASE.⁴⁸ However, I believe there are some outstanding exceptions.⁴⁹

Scientific differences

Many clinicians would argue that disease is a subject of science, whereas health is not. We can study the occurrences⁵⁰ and the episodes⁵¹ by scientific measures, whereas health is related to welfare, well being and quality of life, which is not subject to science. DISEASE has an explanatory and classificatory function for health care professionals and it determines the subject matter of medical science.⁵² HEALTH does not have such functions. That is, disease is a state of nature, subject to the study of natural science, whereas health is a state of persons, subject to everyday language.⁵³

This could of course be used as an argument for the primacy of DISEASE. However, health care professionals' conception of disease

is not only a matter of (natural) science, e.g., with respect to symptoms and syndromes. Correspondingly, their conception of health is in many ways related to science, e.g., in terms of physiology, biochemistry and molecular biology.

Ideological differences

There are substantial efforts to prevent and avoid human disease. In many respects health promotion is more profound than disease control. If you can make the human conditions so as to avoid disease altogether, it is argued, it is obvious that health is the primary concept. WHO's definition of "health" is only one example of this, according to which HEALTH has a political primacy.

NO PRIMACY?

Altogether, there appear to be epistemological, taxonomical, etymological, experiential, axiological and practical differences between HEALTH and DISEASE. What then are the consequences of these differences?

Many health care professionals use these arguments to claim that DISEASE holds an epistemological, ethical, experiential and practical primacy and therefore that 'disease' is the easiest term to define. They also justify its primacy by referring to the medical tradition, e.g., as articulated in the Hippocratic text, *On the art*, where the aim of medicine is to relieve pain and to cure disease, and use this to argue for a prioritization of disease control with respect to health promotion.

However, the discussion above does not justify such a conclusion. Rather it shows that the concepts are different in a wide variety of aspects, which explains why the concepts are neither exhaustive nor mutually exclusive. The discussion also indicates that the differences between health and disease are not easy to put on a simple formula within the disjunctive model. That is, we cannot simply say that health is a concept that belongs to the ordinary language game, whereas disease belongs to a scientific language game.

Health and disease are basic concepts in modern health care. The goal of medicine is commonly conceived of as "to cure disease and promote health," and the distinctions between health and disease discussed above show that "to cure disease" and "promote health" is not a tautology (as it would be with respect to the ideal model). The disjunctive model makes it meaningful to acknowledge both concepts.

Hence the disjunctive model is much less conclusive with respect to primacy than the holistic model and the medical model, and is more open to different aspects of HEALTH and DISEASE. This means that it is more useful for handling tricky cases, but much less straight forward. It is also worth noticing that in order to appreciate the nuances and justify the distinctions of the disjunctive model, health care professionals enter into the landscape of philosophy. This makes the disjunctive model much more a bridge model than the other three models.

MODELS AND CONCEPTS OF PROFESSIONALS

This article has tried to present basic concepts to health care professionals in terms of four different models. The models turn out to be useful for different purposes. Some models are simple, easy to apply, and clearly spell out the relationship between HEALTH and DISEASE. However, they fail to cover important and challenging cases that health care professionals tend to face. On the other hand, models that handle such challenging cases are much more complex with respect to the relationship between the concepts.

The discussion shows that the ideal model is untenable. The holistic and medical models are logically equivalent, but differ in emphasis. Furthermore, the disjunctive model is logically uninformative, but gives philosophers lots of room to play.

Investigating many central aspects to health care professionals' conception of health and disease displays some important differences with the concepts, but does not bring us closer to a conclusion with respect to conceptual primacy within the disjunctive model. Hence, the disjunctive model cannot be used in the same way as the holistic model and the medical model to promote a primacy of health or disease. Neither can we use health care professionals' conception of primacy to identify the disjunctive model (as we could for the holistic and medical model). That is, the disjunctive model is much more open for taking into account epistemological, taxonomic, experiential, semantic, and axiologic nuances.

The interesting thing is that none of the models are obsolete, and that health care professionals are able to apply more than one of the models (depending on the context). This gives reasons for further reflections on concepts such as health and disease. If the models reflect different conceptions of health and disease, and health care

professionals use different models in different contexts, it suggests that they may actually use different concepts at different times. At least it can mean that the intentions of terms such as 'health' and 'disease' may vary. What they mean by 'disease' and 'health' in one context may not necessarily be what they mean in another context. This may be of great importance to health care professionals when they communicate to other groups in society, not at least in their interaction with patients.

The concepts discussed in this article are not the concepts of scholars in philosophy of medicine and their specific theories, but of ordinary health care professionals. As indicated in the introduction, there may be many reasons why there is a discrepancy between the theories on health and disease and health care professionals' conceptions. Whether practice does not listen to theory or theory does not appreciate practice has not been the issue of this article, but the models discussed may be a bridge between theory and practice, and be a way to improve the communication between health care professionals and scholars.

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NOTES

¹ A short note on connotation. Terms are referred to in the following way: 'disease.' Concepts are referred to using capital letters, if it is not clear by the context. Thus DISEASE=concept of disease. No connotation is used when referring to the phenomenon itself of disease.

² B. Hofmann, "Complexity of the Concept of Disease as Shown Through Rival Theoretical Frameworks," *Theoretical Medicine and Bioethics* 22 (2001): 211–37.

³ G. Hesslow, "Do We Need a Concept of Disease," *Theoretical Medicine* 14 (1993): 1–14.

⁴ C.R. Burns, "Diseases Versus Health: Some Legacies in the Philosophies of Modern Medical Science," in *Evaluation and explanation in the biomedical sciences*. H.T. Engelhardt and S.F. Spicker (Dordrecht: Reidel, 1975), p. 44.

⁵ This conception is supported by professional based theories, such as the biostatistical theory, e.g., C. Boorse, "On the Distinction Between Disease and Illness," *Philosophy and Public Affairs* 5 (1975): 49–68; C. Boorse, "What a Theory of Mental Health Should Be," *Journal for the Theory of Social Behaviour* 6 (1976): 62.

⁶ In other words the ideal model does not handle situations where a person is not diseased (according to the professional's conception of the model), but where he or she is suffering and thus not healthy (according to most people's conception).

⁷ This is the same as saying that none of the models imply that health is a sufficient condition for not being diseased or that disease is a sufficient condition for non-health. Both these statements would allow situations of both health and disease.

⁸ However, there are some theoretical challenges with the conception of ILLNESS as opposite to HEALTH as well. Theories of HEALTH and ILLNESS tend to differentiate between health and illness at different levels (typically individual versus group level). It is not obvious that HEALTH is the opposite of ILLNESS at all levels. That is, there appear to be situations of both health and illness. Although it could be argued that both HEALTH and ILLNESS belong to the same (everyday) language game (and therefore are comparable), it is not obvious that the professionals' conceptions (of HEALTH and ILLNESS) belong to everyday language games. Furthermore, one could argue that the point with the models is that they represent strategies to conceptualize the boundaries between important language games.

⁹ I have argued extensively for the importance of ILLNESS as well as SICKNESS elsewhere, B. Hofmann, "On the Triad Disease, Illness and Sickness," *Journal of Medicine and Philosophy* 27, No. 6 (2002): 651–74. However, in this article it is the professional perspective which is scrutinized.

¹⁰ Hopefully, it is clear that these models are not comparable to models of health and disease, such as the bio-psycho-social model of disease. Such models cover certain theoretical perspectives. The models discussed in this article are concerned with another perspective: the relationship between HEALTH and DISEASE. The bio-psycho-social model may or may not be part of these models.

¹¹ K.E. Tranøy, "Grunnleggende etiske prinsipper i helsetjenesten," in *Helsosamma tankar*, eds. P-E Liss and B Petersson (Nora: Nya Doxa, 1995), p. 152.

¹² Tranøy therefore argues that health and disease are interdependent concepts (Tranøy, "Grunnleggende etiske prinsipper i helsetjenesten").

¹³ The perspective of health care professionals is extensively referred to and reflected on by scholars in philosophy of medicine.

¹⁴ H.T. Engelhardt, "The Concepts of Health and Disease," in *Evaluation and Explanation in the Biomedical Sciences*, eds. H.T. Engelhardt and S.F. Spicker (Dordrecht: Reidel, 1975), pp. 125–141; H.T. Engelhardt and K.W. Wildes, "Health and Disease – Philosophical Perspectives," in *Encyclopedia of Bioethics*, vol. 2, ed. W.T. Reich (New York: MacMillan, 1995), pp. 1101–1106.

¹⁵ Tranøy, "Grunnleggende etiske prinsipper i helsetjenesten."

¹⁶ Tranøy, "Grunnleggende etiske prinsipper i helsetjenesten"; Engelhardt, "The Concepts of Health and Disease"; Engelhardt and Wildes, "Health and Disease – Philosophical Perspectives"; H.R. Wulff, and P.C. Gøtzche. *Rationel klinik – evidensbaserede diagnostiske og terapeutiske beslutninger* (København: Munksgaard, 1997). English version: *Rational Diagnosis and Treatment: An Introduction to Clinical Decision-Making* (Oxford: Blackwell Scientific Publications, 1976/1981), p. 81; K.E. Tranøy, "Asymmetries in Ethics," *Inquiry* 10 (1967): 351–372.

¹⁷ This objection I owe to professor Søren Holm.

¹⁸ Tranøy, "Asymmetries in Ethics"; I. Kant, *Anthropologie* (Berlin: Georg Reimer, 1913); L. King, "What is a Disease?" *Philosophy of Science* 21 (1954): 193–203;

Canguilhem, G. *Le normal et le pathologique* (Paris: Presses Universitaires de France, 1943). English translation: Canguilhem G. *The Normal and the Pathological*, trans. C.S. Fawcett and R.S. Cohen (New York: Zone Books, 1991); H. Jonas, *Technik, Medizin und Ethik* (Frankfurt a.M: Insel Verlag, 1985), p. 147.

¹⁹ Tranøy, "Asymmetries in Ethics," 355.

²⁰ Burns, "Diseases Versus Health: Some Legacies in the Philosophies of Modern Medical Science."

²¹ K.E. Tranøy, "Om helsebegreper og helsetjeneste: en meditasjon," in *Begrepp om helse: filosofiske og etiske perspektiv på livskvalitet, helse og vård*, eds. K. Klockars and B. Österman (Stockholm: Liber Utbildning, 1995), pp. 127–139. There are of course theories that claim that health can be classified. Action theoretic positions based on human abilities, could classify health in terms of specific abilities, and in this way claim that there are many specific healths. However, this infringes with ordinary language, and as such also with the basis for some of these theories. Furthermore, health care professionals seldom classify health or discuss different healths.

²² However, there are thoughtful theories based on ordinary language that argue extensively that HEALTH is not the primary concept, but ILLNESS; K.W.M. Fulford, *Moral Theory and Medical Practice* (Cambridge: Cambridge University Press, 1989).

²³ P. Fugelli, and B. Ingstad. "Helse – slik folk ser det" ["A Lay Perspective on Health"], *Tidsskr Nor Lægeforen* 121 (2001): 3601.

²⁴ See, for example, Tranøy, "Asymmetries in Ethics," 355; Jonas, cited in n. 18, p. 147; T. Troels-Lund, *Sundhedsbegreber i Norden i det 16 Aarhundrede* (Copenhagen: Schubotheske forlag, 1900); H.G. Gadamer, *Über die Verborgenheit der Gesundheit* (Frankfurt aM: Suhrkamp, 1993), p. 258.

²⁵ A.L. Caplan, "The Concepts of Health and Disease," in *Medical Ethics* ed. R.M. Veatch (Boston: Jones and Bartlett Publishers, 1989), p. 55.

²⁶ B. Hofmann, "Complexity of the Concept of Disease as Shown Through Rival Theoretical Frameworks." *Theoretical Medicine and Bioethics* 22 (2001): 211–237.

²⁷ This can of course be due to theoretical traditions or ideological bearings, see below. Furthermore, it might be argued that HEALTH and DISEASE belong to different language games, and thus have no semantic relationship. DISEASE belongs to the language game of natural science, and HEALTH belongs to the everyday language game. (I owe this latter argument to professor Lennart Nordenfelt). However, although I sometimes have referred to lay conceptions of "health" and "disease," the issue of this article is the health care professionals' conceptions of these terms. Furthermore, the lay language game of DISEASE is strongly influenced by the professionals' language game of DISEASE, and the professionals' language game of HEALTH is strongly influenced by the lay conception. Moreover, the study of the phenomena that we refer to by the term "disease" helps us understand the phenomena we associate with "health" (Canguilhem, *Le normal et le pathologique*) and the study of DISEASE is important for gaining an understanding of the relationship between biological events and society (E.H. Ackerknecht, "Causes and Pseudocauses in the History of Diseases," in *A Celebration of Medical History*, ed. L.G. Stevenson (Baltimore: The Johns Hopkins University Press, 1982.), pp. 19–36). (L. Nordenfelt, "Health and Disease: Two Philosophical Perspectives. *Journal of Epidemiological and Community Health*

40, 4. (1986): 281–284). Thus, to say that “health” belongs to the language game of ordinary language and that “disease” belongs to the language game of natural science, appears to be too rigid. Health care professionals’ conception of both “health” and “disease” appears to be more supple than that.

²⁸ Tranøy, “Om helsebegreper og helsetjeneste: en meditasjon,” 132.

²⁹ Kant, *Anthropologie*.

³⁰ F. Svenaeus, *The Hermeneutics of Medicine and the Phenomenology of Health: Steps Towards a Philosophy of Medical Practice* (Linköping: Health and Society, Linköping University, 1999).

³¹ F. Svenaeus, “A Phenomenological Analysis of the Concepts of Handicap and Illness,” in *Dimensions of Health and Health Promotion*, eds. Lennart Nordenfelt and Per-Erik Liss (Amsterdam: Radopi, 2003), p. 98.

³² Svenaeus, “A Phenomenological Analysis of the Concepts of Handicap and Illness,” p. 98; Merleau-Ponty, M. *Phenomenology of Perception* (London: Routledge, 1962).

³³ S.K. Toombs, “The Temporality of Illness: Four Levels of Experience,” *Theoretical Medicine* 11, No. 3 (1990): 227–241.

³⁴ Tranøy, “Om helsebegreper og helsetjeneste: en meditasjon.”

³⁵ See n. 17, above.

³⁶ W. Riese, *The Conception of Disease: Its History, Its Versions, and Its Nature* (New York: Philosophical Library, 1953).

³⁷ A. Flew, *Crime or Disease?* (New York: Barnes and Noble, 1973), p. 47.

³⁸ R.M. Sade, “A Theory of Health and Disease: The Objectivist-Subjectivist Dichotomy,” *Journal of Medicine and Philosophy* 20 (1995): 513–525.

³⁹ Engelhardt, “The Concepts of Health and Disease,” p. 127.

⁴⁰ B. Brülde and P-P. Tengland. *Hälsa och sjukdom – en begreppslig utredning* (Lund: Studentlitteratur, 2003), p. 31.

⁴¹ Tranøy, “Asymmetries in ethics”.

⁴² Tranøy, “Grunnleggende etiske prinsipper i helsetjenesten,” 351.

⁴³ J. Glover, *Humanity: a Moral History of the Twentieth Century* (London: Jonathan Cape, 1999).

⁴⁴ Engelhardt and Wildes, “Health and Disease – Philosophical Perspectives.”

⁴⁵ Jonas, *Technik, Medizin und Ethik*, p. 147; Gadamer, *Über die Verborgenheit der Gesundheit*.

⁴⁶ L. Reznick, *The Nature of Disease* (New York: Routledge & Keagen Paul, 1987).

⁴⁷ We can of course argue that we have a health industry, in which technology plays an important part. (I owe this argument to Jan Helge Solbakk). Furthermore, we can also argue that much of the technological enterprise of modern medicine is applied in order to confirm health instead of to detect and treat disease. See B. Hofmann, B. “The Myth of Technology in Health Care,” *Science and Engineering Ethics* 8, No. 1 (2002): 17–29. This, however, breaks with a common conception of medical technology, as technology intended for somatic use is applied to treat mental conditions such as fear and anxiety. When diagnostic technology is applied therapeutically in this way, one departs from the original technological paradigm in medicine. Moreover, using technology to confirm health is different from using technology to promote health. The first can be conceived of as a negative condition (fear, anxiety), that is, as an ailment, and thus not concerned with health as such. The latter, however, concerns the conception of positive health. However, health

enhancement technology is not (yet) as prominent as technology for detecting and treating disease.

⁴⁸ A.C. Sørensen and C. Dalgård. *Sundhed mellem biologi og kultur: en bog om nye sundhedsbegreber* (København: Gyldendal Uddannelse, 1999), p. 136.

⁴⁹ L. Nordenfelt, *On the Nature of Health* (Dordrecht: Kluwer Academic Publishers, 1987).

⁵⁰ B. Hofmann, "On the Triad Disease, Illness and Sickness." *Journal of Medicine and Philosophy* 27, No. 6 (2002): 651–674.

⁵¹ Nordenfelt, *On the Nature of Health*.

⁵² D.A. Albert, R. Munson, M.D. Resnik. *Reasoning in Medicine: An Introduction to Clinical Inference* (Baltimore: Johns Hopkins University Press, 1988).

⁵³ This is of course controversial, and depends heavily on our conceptions of health and disease and of science. If you hold a normativistic conception of health and a naturalistic conception of disease, it might be viable. However, there are many positions that blur this picture, and if you consistently are either a normativist or a naturalist with respect to both health and disease, then the argument fails. George Khushf, "What is at Issue in the Debate about Concepts of Health and Disease? Framing the Problem of Demarcation for a Post-positivist Era of Medicine," in *Health, Science and Ordinary Language* ed. Lennart Nordenfelt (New York: Radopi, 2001).

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