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Approaching the problem of defining 'health' and 'disease' from the perspectives of evolutionary psychology and Darwinian medicine

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Abstract

Concepts of 'health' and 'disease' are of fundamental importance to ethical considerations regarding medical provision. Yet the terms have no clearly agreed definitions. In fact, the difficulty of defining health has led to most attention being given to defining disease instead. Here, two schools of thought have arisen: the 'naturalist' which argues that disease is an objective entity in itself and the 'normativist' which gives emphasis to the subjective nature of disease experience differing between cultures and through history. Respectively, these two schools characterize quantitative (or functional) and qualitative (or evaluative) views of disease. Although both schools offer important insights, they are essentially at odds. This poster outlines an approach that seeks to find a basis for a meeting (if not a unification) of these schools by adopting ideas and approaches from evolutionary psychology and Darwinian medicine.

From the perspective of reproductive fitness, the question of whether health and disease can be said to exist as biological entities is addressed and the idea that all that matters is reproductivity is considered. It is suggested that attitudes regarding certain biological entities, such as physical or physiological states, serve adaptive functions. The suggestion is then made that, although open to social and cultural influence, attitudes towards and qualitative definitions of health and disease also have biological bases. Thus, it may be argued that evaluative definitions of disease have functional (evolutionary) bases, thereby linking the naturalist and normativist schools of thought. Important in this linkage, however, is acceptance of ideas from evolutionary psychology.

The only discipline that currently unites the study of health and disease with that of evolutionary biology (including evolutionary

psychology) is Darwinian medicine. It is within this discipline that new theoretical and evidence-based understanding of 'health' and 'disease' is likely to prove fruitful – in particular, in giving 'health' appropriately weighted attention.

Note

This poster is a brief report on work in progress. The account given here is brief and incomplete and represents food for thought rather than a thorough argument. It presents some ideas sketched out in a fairly general way without providing any concrete conclusions. (It is by no means clear, as yet, that some lines of argument may not, in fact, be tautologies.) As a result, further ideas and constructive comments from colleagues are most welcome.

Introduction

The approach taken by modern medicine has often been criticised as being too disease-orientated. This is unsurprising since traditionally the majority of those with access to medical care do not call upon it unless they feel compelled to do so. This compulsion arises due to the experience of some form of illness¹. Otherwise, life is lived, as René Leriche (see Canguilhem) suggested, 'in the silence of the organs' and no recourse to remedy is deemed necessary. The modern ideal of a transition to a more health-orientated outlook is not easy and the success of such a venture is, so far, questionable. With the exception of advice concerning certain 'life style' practices², medical services are limited in what they can do to enhance an individual's well being³. It may be that much of the re-orientation to a health, as opposed to a disease, focus is little more than the old disease focus in a new guise.

To be health-orientated, however, requires an understanding of what health is. But attaining a definition of health has proved extremely problematic. There is a tacit assumption by many that a state of health

is one where there is no experience of disease. This does not meet with universal approval but the philosopher Christopher Boorse has suggested that beginning with a definition of disease is a legitimate approach to the problem of defining health as the absence of disease. Such an approach is often described as 'naturalist' (or sometimes 'descriptivist')⁴. It holds that the notion of disease can be defined in value-free terms relating to normal physical function and statistical averages. An alternative view suggests that disease is a matter of the evaluation of experience – in effect, that a disease is what we agree it to be. Here, what constitutes and is defined as disease is more variable depending upon the vagaries of culture and historical period. This approach is often described as 'normativist' (or sometimes 'evaluative')⁵. The division between these schools of thought is approximately along the lines of quantitative and qualitative approaches, respectively.

Currently, there appear to be objections to the 'naturalist' approach which its adherents cannot satisfactorily address – not least the issue of what constitutes an average or normal state of human function. On balance, the arguments at present seem to favour those of the 'normativists' (see, for example, the appraisal given by Reznek). However, the sympathies of quantitatively-orientated scientists and, it seems, some in the medical profession, lean more towards the 'naturalist' approach. Both schools of thought acknowledge the existence of organic disease but it is the 'naturalist' bias that seems to suit those who want to define disease entirely in relation to organic phenomena. The differences are such that reconciling the two approaches appears to be currently impossible – unless perhaps novel and so far unexplored avenues can shed new light on the argument.

Darwinian medicine and the problem of disease

One of the most novel and striking statements to come out of Darwinian medicine has been the suggestion that illness can, in fact, be beneficial to the ultimate well being of the individual. The manifestations of a disease are frequently those of a body trying to protect itself. Indeed, many such manifestations are not disease-specific in that the same responses are made to a wide range of harmful agents. Reviews of Nesse and Williams' popular text 'Sickness and Healing' have sported headlines such as 'Sickness can be good for you'. A fever, for example, may be an unpleasant characteristic of an infection but, from the perspective of Darwinian medicine, it is seen as representing a response by the body to defend itself by raising its temperature to a level which the infectious agent finds less tolerable. To block a rise in body temperature in such circumstances has been found to prolong illness. Similarly, morning sickness during pregnancy is unpleasant but it has been suggested that it may serve to eliminate from the mother toxins that might harm the developing foetus. To block this reaction may make the experience more bearable but may at the same time, lead to foetal harm. Thus, to a dispassionate observer, if not to the sufferer, the manifestation normally referred to as 'illness' can be seen to have positive connotations.

If being unwell can be of ultimate benefit to an organism, Darwinian medicine is, therefore, calling into question the use of experience and associated values as guides to what disease really is. As a result, it seems to be at odds with the 'normativist' approach to disease definition. This is not to suggest that that approach is completely

discredited or refuted at a stroke but it does suggest that it cannot be taken to give a wholly definitive account.

Evolutionary Psychology and the problem of disease

Evolutionary psychology, although criticized for explaining behaviour simply in terms of genes and reproductive success (see for example Rose and Rose's collection 'Alas Poor Darwin'), nevertheless poses pertinent questions. One needs to ask where our values come from – in particular those values pertaining to attitudes and responses to illness. 'Normativist' accounts of disease do not seem to spend much time addressing this question. Instead, it appears to be largely accepted that, since they vary between cultures, they are a social product.

That there are cultural and temporal differences in disease attribution is indeed true but what may be overlooked is that there are certain attitudes or values associated with health and disease that are shared by all societies and have been present throughout history - values that because of their ubiquity may be more important to focus upon. For example, the desires to avoid becoming ill and to avoid death for as long as possible are not simply fads or fashions although the way of achieving those ends certainly are. The desire for personal preservation is more than the product of a value system: it is a biological imperative. Self-preservation is a fundamental factor in reproductive fitness – and, perhaps, one that is not given sufficient attention. Without an innate tendency towards staying alive (at least until it has copulated), no organism can ever hope to reproduce.

If one considers the notion of 'disgust', cross-cultural studies of what different groups consider disgusting show a number of similarities between those groups. It appears that things potentially hazardous to health rank quite high. There is no single simple answer as to why this should be. One could propose that systems of information exchange down the generations pass on important disease-avoiding practices inculcating a set of 'disgust' values directed at self-preservation. There would be truth in this - although humans are well known for departing from the values expounded by their forebears. That aside, it would not be an entirely convincing argument. One has only to ask what might happen should this exchange of information break down and knowledge about hygienic practices not be passed on. One suspects that what one's ancestors found disgusting but were unable to tell their descendents about would still be treated with much the same degree of caution. One suspects that much of what is now held in contempt would continue to be so.

An innate component to the attribution of 'disgust' to certain things has benefits for individual survival and reproduction. It is suggested here that there may be some element of this in our attitudes to illness and disease. Finding illness an unpleasant experience causes a redirection of one's immediate goals to the removal of those experiences and a restoration of 'the silence of the organs'. Finding other people's illnesses objectionable may cause one to avoid those people and, in so doing, reduce the risk of acquiring that illness (if infectious). All such responses have a survival advantage. For human beings, there is ultimately an element of conscious decision in the extent to which one allows oneself to be influenced by these attitudes and in what might be considered to be a disease⁶ but, importantly, it is

also quite probable that innate factors directed at self-preservation are active too. If so, then it may be suggested that values associated with 'normative' definitions of disease are a reflection of innate factors promoting self-preservation and, as a result, potential reproductive success. Thus, fundamental to 'normativism' is, in fact, a mechanism that can help preserve the physical integrity of the individual and the continuity of the species.

To summarize the position so far – it has been noted that defining health is so problematic that defining disease first and viewing 'health' as its absence has proved an appealing way out of an impasse. Those that adopt this approach tend to present ideas that quantitative scientists would tend to favour. However, a currently more persuasive approach to the problem sees disease as an evaluated notion changing with time and place. It is necessary to question where values originate, whether they are purely products of social factors or whether more fundamental and innate factors are at work. It is suggested that innate factors may be more influential than some may realize. Since, as Darwinian medicine suggests, not all aspects of illness are necessarily bad, many of the body's responses to what is called illness are in fact physiological responses that can have ultimate advantage. In addition, attitudes to illness and, in particular, its avoidance are also advantageous to self-preservation and, as a consequence, reproduction. It is proposed here that what is fundamental to a system of values affecting responses to illness has survival advantage in that it seeks to maintain normal organic function by avoidance of what may be injurious. Darwinian medicine points out that often what we dis-value about illness may be potentially helpful to restoring the function of the organism – if one makes the appropriate

response. Studies from evolutionary psychology suggest that finding certain things disgusting, including other peoples' illnesses and avoiding these, confers survival benefits to the individual. Thus, concerning the question of what constitutes disease, Darwinian medicine and evolutionary psychology both raise interesting and important points about the suggestion that it is primarily a matter of evaluation.

There is here a certain linkage between the 'naturalist' and 'normativist' approaches to defining 'disease'. That is, normal biological function⁷, when compromised, produces experiences⁸, responses to which are usually directed at returning the organism to normal. In humans, this basic interplay has been elaborated and intellectualised so that it now includes a range of conditions not directly related to survival.

One of the problems for the 'naturalists' has been how to define normal biological function. Resort to statistical notions has been proposed but has not proved to be thoroughly convincing. There may be an argument to suggest that the body's norms are those physiological parameters which, when departed from, elicit experiences one is compelled to respond to in some way. The body, in effect, defines its own norms and working parameters within the context of its basic design. In addition, these norms and working parameters need not be fixed but may be influenced by factors such as age, training and interaction with the environment. Resort to population averages as a means of defining standards against which to define an individual's disease state may not, therefore, be entirely appropriate.

The 'naturalist' and 'normativist' approaches are both focused on humans. Both make credible statements yet are essentially at odds. It is not the aim of this study to find a means of merging the 'naturalist' and 'normativist' approaches but rather to see if there is common ground that can be further explored. This there appears to be.

Notes

1 The term 'illness' is here used is distinct from 'disease'. The former relates to physical and mental experience whereas the latter relates to independently diagnosable phenomena.

2 Practices such as smoking, overeating, consumption of too much alcohol, unsafe sex, etc. are known to be potentially hazardous because of their correlation with specific undesirable end results i.e. their ultimate effects not any notion of their disparity with optimal function.

3 'Well being' is used as a general term throughout to avoid lapsing into the normally rather loose use of the term 'health'.

4 Other terms have also been applied.

5 Other terms have also been applied.

6 The situation is more complicated than this. It would appear that as society and medical technology have progressed, an increasing number of lesser conditions have achieved disease status.

7 This is of key importance to the 'naturalist' approach.

8 These experiences may then be evaluated. This is of key importance to the 'normativist' approach.

Bibliography

Although certain works are mentioned in the above text, given the nature of the present work, the following bibliography is given more in the form of a 'further reading' list than as a list of cited work. In this way, it is hoped that interested colleagues will be offered a wider range of relevant material.

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