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Clinical Evaluation and Biomedical Research: The Janus-Faced Testability of Medicine as a Human Science

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ABSTRACT

Karl Jaspers already fully understood, as early as 1919, the importance of reconciling the two "souls" of medicine, i.e., the analytical-reductionist and the holistic-normative, the scientific-technological and the clinical. This demand is as (or more) urgent today as it was in Jaspers's time and in the literature of the last decades about the status of medicine a new awareness has grown that an adequate notion of medical praxis requires an integrative position, which combines the analytic-reductionist with the normative and holistic perspective on medicine. While accepting in its generality Jasper's thesis of the necessary integration of analytic-naturalistic and phenomenological-existential point of view to understand medicine, we will try to justify the need for such an integration not for (albeit important) ethical-existential reasons, but for epistemological and methodological reasons, intrinsically related to the specific status of medicine as a human science. The peculiarity of the "rules" of medicine as a human science demands a synergistic, reciprocal and continuous interaction of clinical and extraclinical testing. The resulting spiral movement is one of the most general epistemological and methodological conditions for the possibility of realizing, at least in part and in an ongoing process, an ideal of medicine in which objective, biomedical and extraclinical knowledge, on the one hand, and the personal and clinical knowledge, on the other, can work together to reliably counter disease and illness or, which is the same, to reliably promote the goal of health in its two main meanings of the term, the analytic-naturalistic and the phenomenological-existential, ideally opposed but always intimately intertwined in real personal life.

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Introduction

In the literature of the last decades about the status of medicine a new awareness has grown that an adequate notion of medical praxis requires an integrative position, which combines the impersonal, experimental-operational moment of empirical sciences with the (inter)personal clinical knowledge [1-13].

The main purpose of this paper is a further step in this direction. In particular, my purpose is to take up and develop ideas already defended in the past: it is not primarily for ethical, but for epistemological-methodological reasons, connected with the status of medicine as a human science, that medicine, after emerging from clinical needs, must unfold itself in statistical-impersonal knowledge to finally return to cure the patient in the flesh, and vice versa, in a virtuous spiraliform and methodological movement [14].

The paper is organized as follows. Section 2 offers a brief historical-problematic introduction, devoted to Jaspers. His conception supports the just demand that medicine, even in its most impersonal and scientific attitude, must not forget that caring for the suffering of individual ill persons is its constitutive purpose. However, if this demand is not to remain a purely ethical requirement, it is necessary to clarify the epistemological and methodological conditions under which it is feasible, given that many authors have accentuated the tension and even opposition between the scientific-naturalistic and the phenomenological-existential attitude of malady and medicine. Section 3 briefly describes and shows the one-sidedness of the two most important and opposite conceptions of "malady" (here used as a general term for more specific words, such as "disease", "illness" and "sickness"), the organic-biological (or naturalistic) and the phenomenological-existential (or normative). This leads to a kind of antinomy, which Section 4 will try to solve, showing how the strengths of both naturalistic or scientific-reductionist and normative or phenomenological-humanistic accounts not only should, but indeed may be maintained in the light of the epistemological and methodological status of medicine as a human science. The peculiarity of the "rules" of medicine as a human science demands a synergistic, reciprocal and continuous interaction of clinical and extraclinical testing. The resulting spiral movement is one of the most general epistemological and methodological conditions for the possibility of realizing, at least in part and in an ongoing process, an ideal of medicine in which objective, biomedical and extraclinical knowledge, on the one hand, and the personal and clinical knowledge, on the other, can work together to reliably counter disease and illness or, which is the same, to reliably promote the goal of health in its two main meanings of the term, the analytic-naturalistic and the phenomenological-existential, ideally opposed but always intimately intertwined in real personal life.

A Brief Historical Introduction

Karl Jaspers and the Demand of a Reconciling the two Souls of Medicine, the Scientific and the Clinical

Karl Jaspers deserves credit not only for having foreshadowed, among the firsts, the problems of medicine in the age of science and technology, but also for having fully understood the importance of reconciling the two "souls" of medicine, the scientific-technological and clinical, the analytical-reductionist and the personalistic-holistic. As far as the fist point is concerned, in his 1958 talk at the Congress of the "Gesellschaft deutscher Naturforscher und Ärzte", he wrote.

Daily, great surprising therapeutic successes are achieved with numerous ill individuals. Yet astonishingly there is a growing dissatisfaction among patients and physicians. At the same time, for decades, there has been talk of the crisis of medicine, of reforms, of the overcoming of academic medicine and the new foundations of the whole view [der gesamten Krankheitsauffassung] of illness and of being a physician [15].

Immediately afterwards, Jaspers indicated among the causes of this situation the fact that the age of technology had influenced the medical profession to the point of threatening the very idea of the doctor: "medicine as a natural science" ([d]ie naturwissenschaftliche Medizin] subjected itself to what exact as to an idol, instead of making it serve the medical ideal. Medicine as a natural science, scientific medicine, "has a tendency of subjecting itself to what is exact instead of using it, of allowing the physician to be overpowered by the researcher [15]."

And even before that, in 1919, Jaspers had described with great precision the two fundamental attitudes, in principle different, that the doctor can take towards the patient, now assuming the clothes of the doctor-scientist, now those of the doctor-clinician:

"Let us imagine a doctor at the bedside of a dying man; he is in a viewing and reflective attitude, but only to the extent that these attitudes provide him with means for his activity, for his will to heal. A leap occurs when the rational attitude becomes autonomous: he now sees and looks for everything that can teach him or her about this case, even if this does not provide any possibility of healing; he takes into account causal relationships on all sides and defines and orders the symptomatology. He subsumes to known subtypes, and brings the unknown, new to him, clearly out, etc." [1].

It is already clear from these few remarks that for Jaspers it was decisive for the future of medicine to remove the barriers that separate the patient and the doctor, leading medicine to a way of healing that is contrary to its original mission. For him, it was necessary to find the way to mediate between the two souls of medicine - each of which has its own legitimacy - on the basis of the leading thought according to which "only the physician in dealing with the individual patient [im Umgang mit den einzelnen Kranken] fulfils the authentic vocation of the physician" [1].

Now, this duplicity of attitudes towards the patient corresponds roughly to two different ways of understand malady, that is, as 'disease' and 'illness'. As Cassell noted in 1976, the technological revolution, by fuelling the hope of cure of many 'maladies' (a term which we use here in the most generic sense, which includes both 'disease' and 'illness' and which is linked to the common sense of being unfit or unable to go or do when you want to) has contributed to an increasing differentiation between what could be treated by technological means (and with respect to which there was also an often excessive confidence and hope in their cure) and illness, something which is subjective, which does not fit into the categories of rigorous technoscience, and in respect of which the prospects for treatment were much less or even abandoned:

The success of medicine has created a strain: the doctor sees his role as the curer of disease and "forgets" his role as a healer of the sick, and patients wander disabled but without a culturally acceptable mantle of disease with which to clothe the nakedness of their pain [16].

From this point of view, Jasper's mentioned demand for an integrative position concerning the status of medicine, which combines the scientific-reductionist with the clinical-holistic perspective, must also be raised for the distinction between disease and illness. In other words, in order to better justify the need for integration between scientific-technological and phenomenological-existential dimensions of malady, we must first briefly show the one-sidedness of each of them, if they are taken separately.

The Janus Faced Character of Malady and Medicine

What is malady? In spite of some risch of oversimplification– which can be avoided if these concepts are taken as Weber's ideal types - it is useful to contrast two ways of understanding malady– the analytical-naturalistic and the holistic-normative –, roughly corresponding to the different words 'disease' and 'illness' [17].

According to the first view, ‚malady' is a disease that can be objectively ascertained as for the other view, malady is to be defined by an explicit or implicit choice or convention about the main purposes or values of our lives [18-23]. Now, these two perspectives give rise to a kind of antinomy, which depends on considering the two main aspects of malady (and medicine) in abstraction from each other.

According to Boorse, we have to distinguish between "disease" (or, better, "pathology") – a descriptive, non-normative concept – and "illness", which is a concept dependent on a cultural context. Disease, for Boorse, can be defined in merely factual terms, without reference to any value: it would be a type of internal state that is an "impairment" of normal "functional ability", that is, a reduction of one or more functional abilities below typical efficiency, or a limitation of functional ability caused by environmental agents [20]. Typical or normal performance is defined by the concept of "species design".

Our species and others are in fact highly uniform in structure and function; otherwise there would be no point to the extreme detail in textbooks of human physiology. This uniformity of functional organization I call the species design [18,24,25].

This view must face serious difficulties. First, to claim that some body functions are fundamental already assumes that they are part of a teleological system of values. To say that an organ functions well already presupposes that it is something we should preserve in its current state. The latter, however, must be defined either with respect to a normative model that specifies the capabilities a human being should possess in order to fully adapt its concept or with respect to capabilities that are possessed by the majority of people.

Now, in the former case, that is, in the case of a normative definition, we are already beyond a pure science of facts. The second case implies to use the statistical tool, and in fact Boorse does not only rely on the notion of "species design", but also

on that of statistical normality. But this path is not viable either, since one cannot hope to define what "disease" is in nature by resorting to simple statistical means, as a simple thought experiment easily illustrates. Let us assume a highly developed technological society where people travel by transport beams that send an individual's molecules from one place to another and reassemble the molecules upon arrival. In such a society, an individual with both legs paralyzed — or somebody suffering from any "pathology" involving a walking impediment — may be considered healthy to the extent that he or she achieves the main objectives assigned to its individual members by that society [14].

These difficulties seem to speak in favor of a normative, socially conditioned, or even hermeneutical notion of malady and medicine.

Attempts to move in this direction have mostly relied on a person's ability to act in such a way as to realize certain goals, projects or values. But precisely this has led them to a one-sidedness which is very similar but opposite to that already found in the naturalistic perspective. Reference to each person's goals gives rise to overly broad definitions, given the variability of a person's possible goals. If the diagnosis of malady were to be based only on the symptoms explicitly felt by the patient or on the goals each person sets or says s/he sets, it would be highly variable, to the point of losing all intersubjectively testable truth value.

And even when we agreed on what features we want to consider in determining whether a patient is ill or sick, the problem of ascertaining whether or not these features are given would not be resolved at all. There are many forms in which the 'object' itself of medicine – the patient in the flesh – may undermine any intersubjective test of medical therapeutic results. Here I confine myself to three remarks:

- The patient can give answers contaminated by suggestion (placebo-effect). No matter what degree of sophistication tests can attain, the placebo effect will always interfere to some degree with the effectiveness of a treatment [26].
- The result of therapeutic means can be hampered by the knowledge of the patient. According to Legrand, in psychoanalysis the knowledge about the theory can be a great obstacle to therapeutic success [27].
- The patient can – consciously or unconsciously – fake or conceal symptoms, especially but not only in the area of psychiatric diagnosis.

Thus we have arrived at an antinomy, because of the logical tension existing between the concepts of malady as disease and as illness. On the one hand, an objective concept of 'disease', intersubjectively testable, would be highly desirable, not least because of the limited financial resources, which force one to establish, even by means of positive laws, what will be socially and legally recognised as malady (a meaning usually expressed by the word "sickness"). On the other hand, everything we have said so far about the subjective or hermeneutic-existential aspect of malady as illness is such, it seems, as to make it impossible to fulfil one of the basic prerequisites of any scientific notion, namely that of being intersubjectively testable.

As we shall try to show in the last part of this paper, to solve this antinomy it is necessary to clarify a character that medicine shares with the other human sciences (in the common meaning of the term, but including not only psychology, sociology, economics or linguistics, but also, as limiting cases, both historiography and the humanities - such as philology and literary criticism). After some considerations on the peculiar status of the human sciences, I shall touch very quickly this point in the last part of my talk.

Towards an Integrative View

The Concept of Human Science and the Two Sides of Human Action

What is typical of human sciences is that human actions and reasoning always present, in varying proportions from time to time, two clearly distinguishable but inextricably intertwined sides.

On the one hand, typical for the human reality are habits concerning action and thinking. These habits are quasi-mechanisms entrenched in common activities and institutions, old customs and historical traditions, which we follow quasi-mechanically and unconsciously, and which are very difficult to evade. These are the rules from which human actions depart mostly to a negligible extent, so that one is able to subsume such actions under general (psychological, sociological, medical, etc.) rules in order to explain them.

While, in this respect, the rules concerning human action are in good analogy to the scientific laws of nature, on the other hand they remain valid or stay in effect only as far as they do not re-emerge in the awareness of the agent. When this happens, humans can, at least in principle (in fact, always only to a certain extent), change, enhance or even suspend psychological, sociological and, as we shall see, also medical rules. Considered like this, psychoanalysis is paradigmatic. Still, everyday life too repeatedly confirms the ability of our awareness to suspend, in principle, the routines and quasi-automatisms that constitute our life to a large extent.

This unity and distinction between conscious and unconscious aspects of our thinking and acting espresses the most general condition of the possibility and limits of human sciences. It is interesting to note that it was already empirically confirmed in cognitive psychology with similar or different terminology, emphasizing the opposition and at the same time the cooperation between unconscious and conscious thought or thinking, automatic and controlled attentional processes, non-declarative/implicit and declarative/explicit memory, System 1 and System 2, etc. The point in question has also interesting connections with the notion of "mirror neurons" [28-34].

But the essential point of our considerations is that this duplicity of aspects of the human action expresses the most general condition of the possibility and limits of human sciences. It is because of the second side of human acting and thinking that, in many cases of the human sciences, when the test persons actually are the 'objects' experimentally tested, they must be kept in the dark about relevant aspects of the experimental set up: if the students of the famous Millner's experiment had known which regularities of their behavior he intended to inquire, this knowledge would have changed the regularities to be investigated in an unpredictable way. This problem is a well-known problem in the debate about the epistemological and methodological status of human sciences: self-fulfilling or self-destroying prophecies.

In this last case, which exemplify the ultimate root of all major problems in the human sciences, what is the counterweight that human scientists (and medicine) can resort to?

The answer lies in the peculiar use that the human sciences must make (and to a very large extent do make) of the statistical instrument. This tool ensures that, regardless of how many

individual deviations there may be, scientistis are able to predict and explain human behaviour in most cases, or in a sufficiently significant number of them. Mutatis mutandis, in the case of medicine, the statistical tool serves to ensure that medicine successfully prevents or treats patients, mostly or at least in a sufficiently significant number of cases.

From this point of view, there is an important element of truth in Boorse's statistics-based concept of health. The statistical approach is, from my point of view, the methodological counterbalance for avoiding the risk, which always hangs over the sciences of man, of investigating the wrong subject-matter, or, better, a subject-matter that in the meanwhile may have changed itself. The dependence of any general 'rule' on the singular patient's consciousness represents a factor of uncertainty that can be limited by applying statistical instruments as a methodical counterbalance, in order to ascertain that the conjectured rules hold true for at least a significant number of individual cases (significant for our purposes).

But it is an illusion to believe that knowledge can be based only on statistics and extraclinical studies (as Grünbaum maintained in connection with psychoanalysis). The reason I very simple, but decisive. There is no such thing as a statistic concerning human beings that does not rely on the interpretation of individual cases. Every conceivable methodical approach to reducing this variability must, in the end, be re-tested on individual cases. A statistical control of the effectiveness of a general therapy (e.g. Freud's psychoanalysis) presupposes, is concretely based, on the ascertainment of many singular cases [35,36].

Here lies the methodologically relevant sense in which, in medicine, one can never completely disregard the singularity of the patient in the clinical situation. The crucial role of the patient's singularity in medicine depends on the patient's ability to revoke in doubt, at least in principle, the validity of rules concerning not only one's behaviour, but also one's way of living and preserving one's health (or reacting to illness). The more the medical contexts are sensitive to the influence of personal and interpersonal relationships (think for example of psychiatric or psychotherapeutic contexts), the more regularities, although reliable in the great majority of cases, possess an always conditional character and may fail in individual cases.

At this point one might object that we are falling in a vicious circle. On the one hand, in medicine (and more generally in the humanities) we must base any statistics on individual clinical cases, but on the other hand, individual clinical cases can only be understood and/or explained intersubjectively by resorting to general, extraclinical rules.

From an operational point of view, however, it is easily recognizable that there are not only vicious circles, but also virtuous circles, in which a mutual, spiraling correction of results takes place. Everyday life offers many examples of this. The moving backwards and forwards of a weaver's shuttle to produce a piece of cloth is a good example. And the same applies to clinical and extraclinical texts.

In our connection, this leads us to the two more general conclusions of our paper, one theoretical and the other practical-methodological, which are of equal value and complementary. On the one hand, the essential point is that the variability of the clinical setting, even though undeniable, is not unlimited and that even the supposed uniqueness and unrepeatability of clinical results is a myth that does not hold up to the simplest critical examination. Even the clinical response of the individual patient can in fact never entirely escape (and indeed is usually influenced by) factors that exhibit the same kind of regularity that is typical of the rules proper to the human sciences: the powerful influences exerted by the more subjective-interpersonal dimensions on the more organic or technical-functional dimensions of malady are not arbitrary; on the contrary, they obey rules which are sufficiently stable to make possible predictions and explanations similar to those of the experimental sciences.

On the other hand, however, the status of medicine as a human science implies that the regularities it discovers - in principle different from natural or empirical laws because to some extent, albeit minimal, they are always dependent on our consciousness and/or will - can be modified or sometimes, at least in principle, even suspended by human beings. This demands a continuous and repeated monitoring feedback, within specific clinical contexts, of the conditions of their persistence as general.

On the one hand, the factors that, in medicine as in any other human science, can suspend the link between theory and practice in the clinical context require a different, extraclinical and statistical verification strategy. On the other hand, given the peculiar ability of human beings to break general rules regarding their behaviours, extraclinical and statistical conclusions should also be checked and rechecked several times in specific clinical contexts.

Consequently, only a dual - clinical and extraclinical –control can in principle achieve a degree of intersubjectivity that, while not identical, is nevertheless similar to that of the experimental natural sciences. Medicine as any other human science requires a synergy of clinical and extra-clinical methods of control, where one should not consider these checks as a hierarchy or as a merely extrinsic addition of methods, but as an intrinsic and mutual interaction, based on the "subject-object" of medicine as a human science. This character of medicine as a human science does not undermine, but on the contrary is an important condition for improving testability and scientificity of medicine. It can have effects on concrete medical practice, both clinical and extraclinical: it can become a caution and a stimulus for the study of diseases or pathologies, requiring us to determine from time to time whether, and if so to what extent and under what conditions, the aspect for which medicine is a human science has or has not influenced not only general nosologies, preventions, and predictions, but also diagnosis and therapies concerning particular groups or, as a limiting case, even individual patients. But of course, this is not a task that can be done by philosophers, but by scientists who must also act as clinical physicians and by clinical physicians who must also act as scientists.

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