
PSYCHIATRY AS A SCIENCE: WHAT EPISTEMOLOGICAL FOUNDATIONS IS ITS PRACTICE BASED ON?

Dimitri Marques Abramov¹
Fundação Oswaldo Cruz, FIOCRUZ, Brazil
Carlos Alberto Mourão Júnior
Universidade Federal de Juiz de Fora, Minas Gerais, Brazil.

Psychiatry and Science

The aim of science is observing the nature and extract from it conclusions concerning its reality. However, science has the formal status of systematic thinking, founded on Cartesian method (Descartes, 1991). In Descartes' dual view, the mind does not belong to the part of the nature that contains the extensive elements (*res cogitans*), i.e., elements that can be subjected to mensuration, even though they are mental attributes experienced within the subject.

Psychiatry is the human practice that treats the mental diseases in first instance. This point is discussed in this paper, referring to the possibility of Psychiatry, nowadays, to be a science, once Psychiatry does not deal with a universe of formally extensive elements, considering the methodological problems related to the application of the empirical method on the attributes of mind.

We develop our argument by starting from the original problem of empirical science, related to the absolute knowledge of any extensive element, discussing the rationalist nature (ideal) of medicine as an arbitrary posture in relation to the complex organism physical reality; this posture maximizes itself when one tries to introduce Psychiatry among empirical sciences. We conclude our essay by discussing the ethic possibilities to solve this epistemological problem.

The original problem of empirical science

Every mediation or observation of the nature is intrinsically susceptible to measurement deviation. The experimental science, which studies the nature, will always be an approximation and the truth will never be reached, even if good theoretical models are used. Nevertheless, those theoretical models, which use the rational method, cannot start from nothing; at some moment, they will be fed by empirical data, which, in turn, are also approximations of the reality. Therefore, not even the natural physical and chemical phenomena can be absolutely known by science (Collins & Pinch, 2010).

Medicine came into existence as a human practice based upon deductive and inductive thinking, and established itself as a technique from the incorporation of the scientific method to know what was normal and what was pathologic. Within this context, in a world that is ontologically much more complex than isolated physical systems, the empirical method of scientifically knowing makes it even more evident their gross limitations. Let us see it.

How do we diagnose a diabetic person? Diabetes was defined by Hippocrates as a qualitative measurement of abnormality, defined by the presence of sugar in urine, which is an event statistically abnormal. It happens when glucose levels in blood, which we call glycaemia, exceed a certain value. Thus, glucose, either in urine or in blood levels, is a biological marker of diabetes. However, glycaemia

¹ E-mail: dimitri.m.abramov@gmail.com

levels lower than the ones necessary for glucose to appear in urine determine diabetes typical complications, such as vascular diseases. Therefore, what glycaemia levels separate normality from abnormality?

Once diabetes is a nosological entity defined by the normality of glucose levels in blood, the glycaemia would define the diabetic person and the normal one (non-diabetic), by observing how much their glycaemia taxes deviate from normal values. And how do we know the glycaemia normal levels? We study the average of normal people. And how do we know that those people are, a priori, normal? In order to know whether they are normal, we depend on the glycaemia result itself, i.e., on the experiment that defines abnormality. Here is a case of logical principle petition inconsistency manifested in medicine, for it is only possible to define the normal value of a test by evaluating healthy people, but we can only define them as healthy if they present normal values in their own tests, to which we are trying to define their normal values. We go on a circular reasoning.

The natural science, particularly the natural science that studies the human biological complexes, will never be a discoverer of reality. That is because, in first place, the reality can only be known if we have knowledge of its causes or workings, which are tautologically searched by means of observation of reality itself (we will never know what is the reality itself). And secondly, the tool used to remedy the problem of reality knowing will only provide us with an approximation of what such reality should be. Thus, what empirical science gives us is always a new hypothesis based upon a previous hypothesis. The final conclusion is not decided by the scientific method (Bachelard, 1990).

Is the medicine rationalist bias anything more than metaphysics?

Despite the fact that the construction of the medical knowledge is structurally empiricist, in practical terms, the medicine is based upon the rationalist paradigm, which works with theoretical models to look for the reasons of things. In case of medicine, it wishes to look for the biological mechanisms of the pathologic processes.

Pure rationalism deals with mathematics. However, as we have already mentioned, mathematics is an abstract, therefore unreal, discipline. The rationalist thinking in empirical science is admitted to well delimited, non-complex systems, in which a limited number of variables and functions can be satisfactorily known (within, of course, what is arbitrated by means of statistical inference) in order to produce predictive models of reality.

Medicine deals with complex systems, in which the interest variables are countless, as well as the participants, and the estimate of those variables and of the functions that relate them is incomparably worse than the other physical systems, such as orbital or even atomic systems. Using the rationalist paradigm to produce predictive models in medicine reaches the logical absurd.

For example, in order to know the mechanism of action of a medication on a certain illness (i.e., in order to produce a valid model of this process in the light of the rationalist paradigm), there should be the domination with absurd approximation of reality of all the human context, as a specific organism (species) and as an individual, provided with a unique genomic combination modulated by unique environmental experiences along a whole life. If there are not two people alike on Earth, as the common sense teaches us, how does the medicine rationalist models intend to treat all men as if they were equal?

The result of accepting these extremely inaccurate and limited models is the absurd reductionist generalization of human variability, in which the patient, being an ultra-complex, multivariable, dynamic system, must, by rule, fit within the predictive medicine models. This way, the individual experience and the particular patient's constitution does not matter. A priori, it is assumed that the "therapeutic" interventions, based upon those models, are efficient. The ignorance regarding individuality, inherent to the constitutional complexity and the dynamics of each human being, responds for the therapeutic failures, by means of side effects and unpredictable pharmacological interaction. The individual will not behave, absolutely, by principle, like the model predicts.

Notwithstanding, taking the man as a species, the experimental observation of biological mechanisms (which is indirect, occurring by means of interpretation and quantification of analytical chemical and physicochemical reactions), reveal more data than the models include. The experimental analysis itself is reductionist (for we select one part from a whole complex network of relations to be analyzed) and the resulting model is still discreet. For example, when we analyze the mechanism of action of a certain drug,

we establish, for instance, its effectiveness on the activity of a certain receptor (a biochemical component of the cell responsible for the control of cellular processes) in a target organ, such as the pancreas. From the experimental establishment of the effective affinity, we indicate that drug to act on pathologic processes that (supposedly) involve a certain receptor. Nevertheless, every drug is more or less non-specific by nature, acting, with less affinity, on countless other receptors in countless other organs. Despite the low affinity on those other receptors, it is verisimilar that the drug has effects from the low affinity in all the functional network that those receptors participate of. Some of those effects are traced during clinical studies that happen before the establishment of the drug as a therapeutic agent. Those effects are, many times, among the medications' side effects.

Those clinical studies are pure empirical experiments, where the biological model is put aside, and the efficacy and the safety of the tested drug is traced (many times, quantitatively, by means of the subjective reporting of adverse events), in the experimental population, and the statistical correlations are obtained. It means that those studies, in spite of gathering millions of individuals along the years, are subjected to countless failures, which are relative from the inadequate application of experimental procedures by a researcher, up to the complexity inherent to the system patient-environment itself. We highlight that those empirical studies are examples of the approximations, truly, of the reality. Countless effects of this relation drug-mechanism-environment are ignored or attributed, in a way that is sometimes contemptuous way, to mere chance.

The same way that the models for biological mechanisms are a product of rationalism, and are therefore, speculative, the clinical studies also produce models, now populational, on the safety and efficacy of the drug. Once more, from the questionable application to the individual reality. In medical practice, we can commonly observe that medications have unpredicted effects, as we have said. We classify it as idiosyncrasies. Other numerous potential idiosyncrasies, which would happen in a sub-clinical level, would remain unknown. In the long term, the effects of many of the new drugs released in the market and consumed in tons, such as many psychotropics, remain completely uncertain (Sayd, 2011).

By evaluating medicine under this critical point of view, we can understand it as metaphysics, which is the knowledge that goes beyond the senses, which extrapolates the empirical science, but is rationalizable within a logical system, which, necessarily, does not correspond to reality.

However, the medicine mandate exists: remedying and providing human health, in all its dimensions. Science has tried to fulfill this mandate and has been irresponsibly elevated to the state of a definitive method. However, it is far from that (Feyerabend, 2011).

However, despite of the limitations of the empirical procedure, the only way for a medical ethics is the empiricist practice itself, in which the best possible is acting on the individual who suffers some pathologic experience by basing on the sensitive reading of the symptomatology of the own individual, acting in a conservative way, minimizing maximally the exposition to chemical intervention, and treating the rationalist models with much reservation. For the knowledge of the causes, the revelation of biological mechanisms, if it were possible, should happen from the empirical study of the individual as a unique and unreproducible entity, controlling, by observation, all the possible variables (mostly unknown until now a days). Indeed, rationalism could not account for the biological individuality, for treating all the subjects as a part of a fixed model.

The utopia of scientific psychiatry

Psychiatry reflects the rest of medicine and intends to be an empirical science that uses the rationalist paradigm to construct models for the reality. It does not matter if it is done in the territory of psyche or of neurobiology, psychiatry intends, by means of analytical reductionism, to establish general elements of reality. And, according to the rest of medicine, it values this status of science in a passionate way (or irrational, concretizing an ethic paradox in relation to the scientific method itself, which strives for impersonality, for the dichotomy between subject and object).

We foreknow that a knowledge field that intends to study the mental phenomena (phenomenon as signals, or symptoms, manifestations of the subject) must obviously be empirical. If psychiatry intends to be a science, it can only be an empirical science, suffering, ultimately, from the epistemological limitants of the empirical science to know the reality by observing the nature. Therefore, like medicine, it will

produce statistical inferences to establish what will be considered normal and pathologic. And, in a practically disarmed search, it will outline some biological models, which, even being plausible (within a state of knowledge about cerebral and mental processes), are very far from being even understandable (Canguilhem, 2012).

In this criticism, it is worth to recur to the obvious and patent question: what is psychiatry about, if it is not about the suffering of mind? Mind, for definition, is the indissoluble individual complex that unites a subject with a whole universe. Mental suffering is the functional deviation of this complex, which is said to produce abnormality. To objectively establish this abnormality (without entering questions of ontological or ethical order, for now), in an absolute way (impossible) or in a statistical way, according to the medicine as a science establishes, it is necessary to analyze the mind empirically, by means of the scientific method.

To start with, what is measurable and objective among the phenomena that the mind manifests to be a variable for analysis? There are phenomena qualitatively abnormal that are objective, such as the disorganization of ideas, whose presence is already an abnormality per se. From the empirical point of view, the clinical investigation of mind ends there, in the qualitative abnormal phenomena of objective expression, which are clinical signals. In spite of that, we still can find the observer's bias, who classifies such phenomenology according to their own subjectivity, unless there is a parameter for that, (which is illustrated by the glycaemia problem, mentioned at the beginning of this essay). Even like this, we cannot completely refute the simulation hypothesis; psychiatry cannot be a science based on the good faith of the study object.

However, there still are qualitative abnormal and completely subjective phenomena, such as hallucinations, which are restricted to the symptom dimension, accessible only by means of reporting, inaccessible to the empirical verification. How can its existence be proved? How can the subjective experience of hallucination really be qualified as such? They do not have their validity as scientific finding, once they do not produce evident signals. They are nothing but qualia.

We then start to discuss the dimensional phenomena, which are quantitative variations of normal or typical phenomena of the normal mind. For instance, paranoia, sadness, anxiety, psychomotor activity, attention, etc. The first problem is metric: how can they be objectively measured, in terms of length, intensity etc. (it is worth to remember that all the psychometric scales are intersubjective evaluations, based on self-reporting, interviews or clinical conclusions.) The second problem is parametric: how can the limits of what is normal or abnormal be established? The third problem is the worst of them: validity. Once more, scientific psychiatry must count of the good faith of its observation object (the patient) in the sense of their true reporting of their symptoms.

Moreover, is there any causal relation empirically determinable of those mental phenomena? Until today, there are not biological determined and definitive markers to any mental phenomenology, differently from other medicine fields. The biological mechanisms models to what is considered a mental disorder are based, incredible as it may seem, exactly on what is known about the mechanism of action of the psychotropics, which, some way, mitigate the psychic symptoms of those disorders. In fact, the action, for example, of a selective serotonin reuptake inhibitor, which transforms the mental phenomenology of depression, may be synergistic and indirect, not directly involved in the supposed depression physiopathologic mechanisms. Nevertheless, it is considered, in mental health culture, that the depression has, as a consequence, the brain monoaminergic imbalance. Similarly, antipsychotic neuroleptics (antagonists of dopaminergic receptors), certain anticonvulsants and the lithium carbonate, drugs with mechanisms of action apparently different, have similar effects on the treatment of mania, as well as eletroconvulsivetherapy. Truth is, for the largest part of the serious and refractory disorders, the eletroconvulsivetherapies are much more effective, with a mechanism that does not have anything specific. What we can conclude, then, it that any allusion to biological models for mental disorders are nothing but gross speculations (Whitaker, 2010).

In the search for rationalist models, how can the variables in a bio-psycho-social context be controlled separated from the organic and endogenous ones? Up to what point are the factors that determine a mental disorder really endogenous or are they only co-factors facilitating manifestations, if the patients' life conditions and biography are determined by countless dynamic and circumstantial processes?

Besides that, how to differentiate between what is effectively abnormal and what is an effect of the social, cultural, political and historic relations (circumstances) of the system individual-environment? Let

us face it, for centuries, diabetes has been diabetes. However, hysteria has perished, and homosexuality ceased to be a mental pathology after a judicial decision of American Supreme Court. The famous American diagnostic manual for mental disorder, DSM, is in its fifth edition, with substantial changes in the nature of many nosological entities. It means that the ontological problem in psychiatry is the size that there has not even been a definitive conclusion of what is a disorder and how a disorder is.

In a general way, with this questioning and balancing, we have a perspective as big as the size of the psychiatry problem, as an aspirant to be an empirical science, and, worse, by means of the application of a rationalist paradigm. Psychiatry is a speculative job, which needs a lot of foundation and tools to become a science. This affirmation may be very offensive, but, after all, what is the problem of psychiatry not being a science?

A new paradigm for mental health

Science is extraordinarily efficient to put satellites into orbit, control the fission of uranium nucleus, optimize thermodynamic processes in combustion engines, is still valid to describe and manipulate various biological processes, failing progressively as the complexity increases. (Fleck, 2010).

However, in the psychiatry field, science is, literally, a huge utopia. And the use of science through the practices of mental health is reckless. But it is a comprehensible try within the materialistic, ultrapragmatic and rationalist culture of the modern world, which since the already gone times of modernity feeds exclusively from what is called science. The scientific act, in the Enlightenment perspective, became the image of the wise, who, because of that, was inappropriately enthroned in the condition of definitive oracle of all the issues of nature and of humanity. Everything, to have a value, must be scientifically certified.

If there is a real delirium that inhabits humanity, this delirium is the scientific mental health. Well, every man that lives, has lived or will live is like a fingerprint: a complex and irreducible individual. Always a subject. Never an object. We should consider an immeasurable moral aggression the pretension to reduce any man to an intelligible object by science. Notwithstanding, the mental suffering of this man is real. And yes, many times, it is lethal. At the same time that every subject is sane and insane, while he is suffering, he makes others suffer, and paradoxically, he also produces desires and persists in life, he builds individuality and diversity in his craziness.

Psychiatry and psychology are legitimate and necessary as human practices to meet man's mental suffering. The point is its theoretical and methodological presuppositions. There must be a paradigmatic change for an experience purely empirical in a pragmatic and teleological approach, which observes the man by means of a sensitive and creative view, in which the experience is constructed according to the phenomenological referential: the meaning of the reality is perceptual, it is the place to where our consciousness head. Therefore, each man manifests his own world perspective intrinsic to his own identity, which will be confused with the therapist's for a common perception and the designing of a way out of the sphere of mental suffering.

Psychiatry and psychology must re-emerge as a clinic to the individual, aiming at treating the individual's suffering by means of pure experience, despite of the nosological classifications, or classifications that determine normality. It must take on, without any shame, a new state, of non-science. But a creative and affective practice to transform subjectivities (Peixoto, 2012). I. e, it must take on the status of art, in which the words and the psychotropics (as, only psychoactive drugs) are brushes and seasonings for a "clinic-of-the-subject-in-himself", working on the composition of a new existential reality, where suffering is placated or, then, re-signified, tragically affirmed and transformed into an engine for personal evolution.

Therefore, psychiatry and psychology must recognize themselves as art, without giving up on the tools that science – considering all its limitations – can offer them.

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Dimitri Marques Abramov: Laboratório de Neurobiologia e Neurofisiologia Clínica Instituto Fernandes Figueira/FIOCRUZ ("Laboratory of Neurobiology and Clinical Neurophysiology of Fernandes Figueira Institute /FIOCRUZ")

Carlos Alberto Mourão Júnior: MD, PhD, professor associado da Universidade Federal de Juiz de Fora, Departamento de Fisiologia/ICB. MD, PhD, Associate Professor, Universidade Federal de Juiz de Fora, Departamento de Fisiologia/ICB ("Federal University of Juiz de fora, Physiology Department/ICB")