

Diagnosis in Psychiatry – the Role of Biological Markers

– an investigation in the light of Immanuel Kant's philosophy

Poster 6 • in the series* • Psychiatry and medicine in the light of Immanuel Kant's philosophy

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Mental processes are linked to the activity of nerve cells. This gives rise to two questions. Can biological markers determine a diagnosis in psychiatry? And, secondly – can biological boundaries be found which correspond to psychiatric categories? Both questions find their answer within the philosophical works of Immanuel Kant and, moreover, the significance of biological (physical) parameter in psychiatric diagnostics is shown.

Are symptoms and mental phenomena linked with their neural substrate?

Symptoms and mental phenomena appear in our consciousness in the form of terms as a result of neural activity in the brain. The question then arises of whether there is a link between such a term¹, which is the schema of an idea, and the neural substrate from where it came.

Immanuel Kant in *Critique of Pure Reason* writes that a mental object is not attributable to a physical object (→ *Kant quotation 7*).

Confirmation of Kant's statement can be found in daily practice. The cause of any symptom or mental phenomenon cannot be recognised as a general rule purely by the nature of that symptom or phenomenon (gr. phenomenon = that which appears) (→ *Discussion 1*). And vice versa, knowing of the existence of a physical abnormality (a physical object) is, in itself, insufficient evidence to be able to make a decision about the cause of a symptom or mental phenomenon unless the patient's complaints are known (→ *Discussion 2*).

By contrast, if a symptom or a mental phenomenon, e.g. a mental disorder, is already diagnosed on a mental basis, and a physical abnormality related to this is found, then it can potentially help to explain the symptom, phenomenon or mental disorder (→ *Discussion 3*).

It becomes clear that there is no definable correlation between physical brain structures and a mental phenomenon. While a relationship exists, it cannot be defined or determined (→ *fig. 1* and *fig. 2*). No link can be specified because an *ideal object (object in the idea)* is **something quite different** to an *object in an absolute sense*; an *ideal object* makes **no direct** reference to a physical object (→ *Kant quotation 7*).

This is the underlying fundamental reason why empirical research in psychiatry has been unsuccessful in finding biological markers and why, in the foreseeable future, biological markers for the validation of a mental phenomenon and psychiatric diagnosis, will not be found. A "physical" explanation of the manifestation of a mental phenomenon (or of a symptom or syndrome) can be taken into consideration after it has been diagnosed on a mental basis, though not beforehand.

Mental phenomena develop through neural activity – they develop through subjective perception combined with reasoning. All this is physically based: **firstly**, knowledge has physical requirements **and**, **secondly**, knowledge is based on subjective mental processes (→ *Kant quotation 9*). By contrast, physical objects and signs of physical objects, e.g. medical signs, are recognised on the basis of **external criteria** that are recognisable by everyone, and not on the basis of subjective, mental requirements (→ *Kant quotation 9*) (→ *Discussion 4*).

A psychiatric concept is a psychological idea. Moreover, since psychological ideas, and consequently also psychiatric ideas, are *mere ideas* (→ *Kant quotation 4*), these ideas and concepts cannot be determined objectively. A psychiatric concept is given to our reasoning as a mental object, a unity to be used as a foundation only problematically, as an aid to reason, understanding and in the interests of empirical cognition (→ *Kant quotation 8*). Since a mental object and the term assigned to a mental object do not directly relate to any physical object, this mental object (*ideal object*) cannot be determined on the basis of physicality (→ *Kant quotation 7*). A mental object is a **schema of an idea** (→ *Kant quotation 7*). Only physical objects, *objects in an absolute sense*, tangible objects, can be validated because, only with regard to such an object are **all judgements in agreement** with each other (→ *Kant quotation 9*) (→ *Discussion 4*).

We cannot objectively determine a psychological or a psychiatric idea (concept). This insight led Karl Jaspers to write that although the whole, as an idea, is not clearly perceptible and cannot be exactly known, the schema of the idea gives us a close approximation to the whole (→ *Jaspers quotation*) (→ *Discussion 5*).

Are psychiatric syndromes separate entities?

Robert Kendell and Assen Jablonsky have addressed this issue.²

Psychiatric categories being the schemata of psychiatric syndromes (→ *Kant quotation 7*) have to be defined by human reasoning, in fact they need definitions as boundaries to enable understanding, to allow the development of thought (→ *Kant quotation 8*), and to promote discussion and study of the diverse psychiatric phenomena and syndromes. Physically there are no boundaries; neural substrate has no boundaries corresponding to the mental boundaries stipulated by convention (→ *Discussion 6*).

Conclusion

It can be shown by applying Immanuel Kant's philosophy that on the basis of fundamental principles a psychiatric diagnosis **cannot be validated** by biological markers. Moreover, it can be shown that the boundaries of psychiatric diagnostic categories originate from human thought and that there are no physical boundaries which correspond to these mental boundaries. Raising awareness of these fundamental principles leads to a wider understanding that no such physical boundaries can be found using empirical research.

Psychiatric diagnoses are merely *methodological aids* – as Karl Jaspers put it – to explore the great variety of mental phenomena aided by these schemata. Physical findings found with mental disorders provide additional, valuable information and, through them, mental disorders can in part be better understood and explained.

Discussion

Discussion 1: A symptom or a mental phenomenon does not normally supply us with sufficient information to lead to the identification of its cause. There are many potential causes of physical pain (e.g. of headache) and also of mental phenomena (e.g. of fear or delusion). In the case of progressive paralysis, it has been discovered that various physical causes contribute to its clinical presentation, including luetic encephalitis, among others.

Discussion 2: When CT or MRI scan images depicting an intracranial tumour are shown to a doctor without prior knowledge of the individual patient's complaints, a decision as to whether the patient is suffering from headache, for example, or is displaying signs of any psychopathological abnormality, cannot be reached purely on the basis of these images; there is no definable relationship between a physical object and a mental object (e.g. symptom or mental phenomenon) (→ *Kant quotation 7*).

A functional image shows stronger or weaker localised activity in time sequence, but its meaning is only understood when the patient and the psychopathological status of that patient are known: without this knowledge the activity observed cannot be recognised as being normal or as already showing signs of abnormality. On these images, a boundary between normal and abnormal cannot be identified. Such a boundary cannot be seen because it first has to develop in our thinking through cognitive processes (→ *Kant quotation 8*), mental processes including subjective judgement in the consciousness of the person who perceives the symptom or mental phenomenon (→ *Kant quotation 9*). Thus, no neural correlates can be found – no identifiable boundary that corresponds to the mentally defined boundaries – and consequently, for example in functional images, no boundaries correlating with the mentally defined categories.

Discussion 3: A mental phenomenon or a mental disorder, once diagnosed, can perhaps be explained in relation to a physical abnormality. For example, a delusional disorder could potentially find its explanation in the tumour visible in the CT image, and a depressive disorder in the clinically diagnosed thyroid hormone deficiency, etc. Similarly, functional imaging evidence is significant once a mental disorder has been diagnosed on the basis of abnormal mental phenomena (→ *Discussion 4* and *Discussion 5*).

Discussion 4: We can only establish the validity of a tangible object, or its signs (*objects in an absolute sense*). It is only in relation to such an object that all knowledge is in agreement. (→ *Kant quotation 9*)
For example, an initial idea, a suspected heart infarction, is tested and either verified or not by medical signs, e.g. electrocardiographic findings, laboratory findings, etc., (→ *Kant quotation 9*). The validity of a psychiatric diagnosis, e.g. schizophrenia, which is a *mere idea* (→ *Kant quotation 4*), cannot be established since this concept (this idea) is based on signs which we perceive only as *mere ideas* (→ *Kant quotation 8*) (→ *Discussion 6*).

Discussion 5: The psychiatric classification categories are the schemata of these diagnostic concepts (ideas). Karl Jaspers writes that we cannot understand the *whole*, since we only have it as an idea, but through a *schema of the idea* we can come closer to the *whole*. Karl Jaspers refers to such schemata as **methodological aids** that can be infinitely (German original: *grenzenlose*) corrected and reshaped (→ *Jaspers quotation*).

Discussion 6: The *systematic unities* (→ *Kant quotation 8*) in psychiatry are based on clinical experience and reasoning and have been defined according to a personal opinion, therefore dogmatically (gr. *doma* = opinion, way of thinking). Emil Kraepelin, for example, defined the *systematic unity* dementia praecox, and Eugen Bleuler the *systematic unity* schizophrenia, the group of schizophrenias. On a physical level, however, no matching boundaries can be found that correspond with these mentally defined categories.

Through the use of artificially zoned unities, we are able to grasp the great diversity of mental phenomena and connect with them on an intellectual level. Since it was human thought that created these unities, corresponding physical boundaries are not there to be discovered, whether biochemical, anatomical, histological, or through medical imaging, etc. There are no physical boundaries between that which is still normal and that which is no longer normal – between that which we term normal and that which we term mentally abnormal (diseased). Such boundaries exist only in our thoughts and therefore do not correlate with anything on the physical, biological level that we can identify. This is the reason why there are diagnostic problems of a fundamental nature in psychiatry which in medicine only occur with symptom-based diagnoses.

fig. 1

phenomenon ◀.....▶ neural substrate

A relationship between a mental phenomenon (*ideal object/object in the idea*) and its neural substrate (*object in an absolute sense*) exists, but it is **not possible** to define or determine the relationship.

fig. 2

physical (medical) sign ↔ physical object (abnormality)

A relationship between a medical sign (physical sign/*object in an absolute sense*) and the body (*object in an absolute sense*) exists, and it is **possible** to ascertain that relationship.

¹ e.g. the term for a concept in psychology or psychiatry

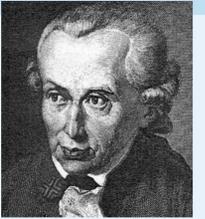
² R. Kendell, A. Jablonsky: *Distinguishing Between the Validity and Utility of Psychiatric Diagnoses*, Am J Psychiatry 160:4-12, Jan. 2003

Kant quotations

Kant quotation 4: *psychological idea*

(Norman Kemp Smith translation)

"Nothing but advantage can result from the **psychological idea** thus conceived, if only we take heed that it is not viewed as more than a **mere idea**, and that is therefore taken as valid only **relatively** to the systematic employment of reason in determining the appearances of our soul. For no empirical laws of bodily appearances, which **are of a totally different kind**, will then intervene in the explanation of what belongs exclusively to *inner sense*. No windy hypotheses of generation, extinction, and palingenesis of souls will be permitted. The consideration of this object of inner sense will thus be kept completely pure and will not be confused by the introduction of heterogeneous properties. Also, reason's investigations will be directed to reducing the grounds of explanation in this field, so far as may be possible, to a single principle. All this will be best attained through such a **schema**, viewed as if it were a real being; indeed it is attainable in no other way. The psychological idea can signify nothing but the schema of a **regulative concept**." ¹ (page 558)



Immanuel Kant
1724 – 1804

Kant quotation 7: *object in an absolute sense – versus – ideal object*

(Norman Kemp Smith translation)

"There is a great difference between something being given to my reason as an *object absolutely*, or merely as an *object in the idea*. In the former case our concepts are employed to determine the object; in the latter case there is in fact only a schema for which no object, not even a hypothetical one, is directly given, and which only enables us to represent to ourselves other objects in an indirect manner, namely in their systematic unity, by means of their relation to this idea." ¹ (page 550)

Kant quotation 8: *mere idea – a systematic unity*

(Norman Kemp Smith translation)

"But reason cannot think this **systematic unity** otherwise than by giving to the idea of this unity an object; and since experience can never give an example of complete systematic unity, the object which we have to assign to the idea is not such as experience can ever supply. This object, as thus entertained by reason (*ens ratiouis ratiocinatae*), is a **mere idea**; it is not assumed as a something that is real absolutely and *in itself*, but is **postulated only problematically** (since we cannot reach it through any of the concepts of the understanding) in order that we may view all connection of the things of the world of sense as if they had their ground in such a being.

"We misapprehend the meaning of this idea if we regard it as the assertion or even as the assumption of a real thing..." ¹ (pages 556-557)

Kant quotation 9: *opinion, belief, knowledge*

(Norman Kemp Smith translation)

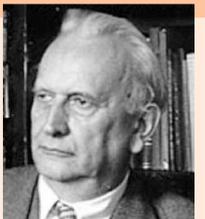
"The **holding of a thing to be true** is an occurrence in our understanding which, though it may rest on **objective grounds**, also requires **subjective causes** in the mind of the individual who makes the judgement. If the judgement is valid for everyone, provided only he is in possession of reason, its ground is objectively sufficient, and the holding of it to be true is entitled *conviction*. If it has its ground only in the special character of the subject, it is entitled *persuasion*."

"Persuasion is a mere illusion, because the ground of the judgement, which lies solely in the subject, is regarded as objective. Such a judgement has only private validity, and the holding of it to be true does not allow of being communicated. But truth depends upon agreement with the object, and in respect of it the judgements of each and every understanding must therefore be in agreement with each other (*consentientia uni tertio, consentium inter se*). The **criterion** whereby we decide whether our holding a thing to be true is conviction or mere persuasion is therefore **external**, namely, the possibility of communicating it and of finding it to be valid for all human reason. For there is then at least a presumption that the ground of the agreement of **all judgements** with each other, notwithstanding the differing characters of individuals, rests upon the **common ground**, namely, upon the object, and that it is for this reason that they are **all in agreement with the object** – the truth of the judgement being thereby proved." ¹ (page 645) (see poster 3 for complete quotation)

¹ Immanuel Kant's *Critique of Pure Reason*, translated by Norman Kemp Smith, Blunt Press, 2008 (originally published in 1929 by Macmillan and Co., Limited, London)

Jaspers quotation

"Although I cannot exactly know the whole as idea, I can approximate to it – in Kant's words – by the "schema" of the idea. Schemata are designed types, misleading if I treat them as realities or as basic theories but true as **methodological aids** that can be endlessly corrected and reshaped." ² (page 560)



Karl Jaspers
1883 - 1969

² Jaspers Karl: *General Psychopathology*, Volume II, translated from the German by J. Hoenig and Martin W. Hamilton with a new foreword by Paul R. McHugh, The Johns Hopkins University Press edition, 1997

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