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## Is psychoanalysis a pseudoscience? Reevaluating the doctrine using a multicriteria list

*Será a psicanálise uma pseudociência? Reavaliando a doutrina utilizando uma lista de multicritérios*

*¿Es el psicoanálisis una pseudociencia? Reevaluando la doctrina usando una lista de criterios múltiples*

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### ABSTRACT:

**Introduction:** In the past, psychoanalysis was classified as a pseudoscience. Karl Popper was one of those who objected to the idea that psychoanalysis is a science, using falsifiability. However, falsifiability cannot be considered sufficient anymore, since it carries major weaknesses and better alternatives to address the issue are available. **Objective:** This article intends to evaluate the scientific status of psychoanalysis concerning the demarcation problem. **Method:** In order to do so, Sven Ove Hansson's criteria was used: It consists of a set of sufficient and necessary conditions which is complemented by a multicriteria list that helps identifying pseudosciences. It was analyzed how much psychoanalysis fits each of Hansson's seven items, besides proposing the addition of an eighth. **Results:** The results showed that psychoanalysis was compatible with all eight demarcation of pseudoscience's items. **Conclusion:** In the end, the conclusion was that even if falsifiability was to be dismissed, the evidence suggests that there are still enough reasons to affirm that psychoanalysis is a pseudoscience, since it significantly deviates from scientific quality standards.

**Keywords:** Psychoanalysis, Psychology, Science

## RESUMO:

**Introdução:** A psicanálise já foi classificada como pseudociência no passado. Karl Popper foi um daqueles que traçou objeções à doutrina psicanalítica, usando do critério da falseabilidade. Entretanto, a falseabilidade não pode mais ser considerada suficiente para resolver o problema, já que implica em dificuldades consideráveis, e melhores alternativas para abordar a questão estão disponíveis. **Objetivo:** Este artigo tem por objetivo avaliar o *status* científico da psicanálise em relação ao problema da demarcação. **Método:** Para fazer isso, o critério de Sven Ove Hansson foi utilizado: este consiste em um conjunto de condições suficientes e necessárias, que é complementado com uma lista de multicritérios que auxiliam a identificar pseudociências. Foi analisado o quanto a psicanálise se encaixava em cada um dos sete itens da lista de Hansson, além de ser proposta a adição de um oitavo item. **Resultados:** Os resultados mostraram que a psicanálise era compatível com todos os oito itens da lista de demarcação de pseudociências. **Conclusão:** Ao final, a conclusão foi de que mesmo que a falseabilidade deva ser descartada, as evidências sugerem que ainda temos motivos suficientes para afirmar que a psicanálise é uma pseudociência, já que ela se distancia significativamente dos padrões de qualidade científicos.

**Palavras-chave:** Psicanálise, Psicologia, Ciência

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## RESUMEN:

**Introducción:** En el pasado, el psicoanálisis fue clasificado como una pseudociencia. Karl Popper fue uno de los que objetó la doctrina psicoanalítica usando el criterio de la falsabilidad. Sin embargo, ya no se puede considerar la falsabilidad como suficiente para resolver el problema, ya que implicaría dificultades considerables y existen mejores alternativas para abordar este asunto. **Objetivo:** Este artículo pretende evaluar el estatus científico del psicoanálisis con respecto al problema de demarcación. **Método:** Para ello fue utilizada la propuesta de Sven Ove Hansson: ésta consiste en un conjunto de condiciones suficientes y necesarias, complementado con una lista multicriterios que ayuda a identificar pseudociencias. Se analizó que tanto el psicoanálisis se encaja en cada uno de los siete ítems de la lista de Hansson y además, se propone



la adición de un octavo. **Resultados:** Los resultados mostraron que el psicoanálisis es compatible con todos los criterios de demarcación de pseudociencia. **Conclusión:** Al final, se concluyó que aún teniendo que descartar la falsabilidad, las evidencias sugieren que hay motivos suficientes para afirmar que el psicoanálisis es una pseudociencia, ya que ésta se desvía significativamente de los estándares de calidad científica.

**Palabras clave:** Psicoanálisis, Psicología, Ciencia

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## Introduction

Laplanche and Pontalis [1] present the definition of psychoanalysis as follows: founded by Sigmund Freud, psychoanalysis is a psychotherapeutic treatment and an investigation method (upon which psychotherapy rests) that has as its object of study the unconscious meaning of human productions (words, actions, thoughts, dreams, and others). Besides that, psychoanalysis is a conglomerate of psychological and psychopathological theories, which has its basis on the experiences that come from the psychotherapy and the investigative method.

One of the most famous authors who objected to the doctrine, more specifically by questioning its scientific status, was the philosopher of science Karl Popper. About psychoanalysis, Popper [2] argued that regardless of any occurrence that is related to human behavior, the Freudian psychoanalysis adepts could interpret it in the light of their own theory. Even though intuitively, a theory compatible with all kinds of predictions and scenarios could sound attractive, that would not be a quality for the author; only a theoretical weakness. In his view, a theory that applies to the world regardless of the scenario in question does not say anything relevant about it, because even if reality were utterly different from how it is today, it would still sound as accurate as if it were not.

To judge a theory that behaves like that, Popper [2] used falsifiability, that works as a demarcation criterion for what is scientific and what is not. Falsifiability determines that, for a theory to be scientific, there must be a possibility that it could be wrong and eventually be refuted by new evidence. It is not enough that a theory can explain the world; means to check if its explanations are appropriate must exist, and that would only be achievable if there were a possibility for the theory to be wrong in at least one scenario. For the author, psychoanalysis would be applicable in every conceivable circumstance, and there would not be a possibility to check if its explanations were really adequate [2 p. 64-65]. So, falsifiability is proposed to demarcate science, and psychoanalysis would not fit in the category.

Popper's comments did not go unnoticed, and he was criticized for the way he characterized psychoanalysis. About this debate, Grünbaum [3] used

the paranoia example to defend that the theory would be falsifiable. Grünbaum argued that, for the Freudian theory, every paranoid had repressed sexual desires towards other individuals of the same sex; so, if hypothetically a paranoid that did not repress his desires were found, the theory would have been falsified, that is, a situation which it could not explain existed. About that, Cioffi [4] counterargued that, even if that was the case, this topic is peripheral for psychoanalytic theory, and by using it as the final argument, it is easy to forget more critical candidates to face the Popperian criterion, for example, the sexual etiology of neurosis. The paranoia case is insufficient for taking down Popper's criticism, for not being part of the major suppositions of the doctrine.

Besides his psychoanalysis criticisms, Popper's science view in general was also objected to. This article has no intention to reach an exhaustion of possible counterarguments. However, considering some examples given by Newton-Smith [5 p. 44-76]: Popper rejected that inductive reasoning (non-deductive predictions or generalizations whose validity does not depend on their logical form) should be used in science, defending that it should operate with deductive reasoning only (of which the validity or invalidity depend exclusively on its logical form), and therefore, confirming a theory would be impossible. It is only possible to know that, if the theory is falsified, then it is false. However, even if a theory is falsified, if there is no better option to explain certain phenomena that could replace it, and considering that the first possesses reasonable assertions, it would probably not be wise to discard it just because it was falsified. Despite that, his conception of science inadvertently requires induction to justify itself, what shows a failure in his proposal. These and other difficulties in the adoption of falsifiability as a demarcation criterion turn it insufficient, and this creates a demand for a different one.

## Methods

Sven Ove Hansson is a philosopher who had an important impact on the debate of the demarcation problem, by creating an alternative proposal: a criterion with two conditions that are jointly sufficient and necessary for a doctrine to be pseudoscientific [6], and a multicriteria list that helps identifying pseudosciences, the latter being based on seven items [7]. It

has the advantage of not needing to face the same problems as the previous ones faced, like Popper's falsifiability. Before discussing it, it is beneficial to understand his way of defining *science*:

"Science (in the broad sense) is the practice that provides us with the most reliable (i.e., epistemically most warranted) statements that can be made, at the time being, on subject matter covered by the community of knowledge disciplines (i.e., on nature, ourselves as human beings, our societies, our physical constructions, and our thought constructions)" [7, p. 70].

It is common to consider that science only entails the natural sciences, and that notion excludes linguistics, mathematics, philosophy, history, and other humanities from the category. However, as Hansson [7] shows, this is not an adequate perspective because both science (in the traditional sense) and humanities aim to provide the most reliable statements regarding their object of study. Therefore, they can be understood as the theories that present the most robust evidence regarding what they investigate. Together, they form a community, and the disciplines that are part of it cooperate and depend on each other to fulfill this goal.

A recurrent argument is that psychoanalysis is a science, since it is inserted within the academic realm, in research, and in departments of many higher education courses. It would therefore be part of the scientific community. However, "It is not the academic status but the methodology and the type of knowledge that should determine whether a discipline is scientific (in the broad sense)" [7 p. 64]. Even if it is recognized by the academy, this does not make it a science. If homeopaths or creationists, for example, started creating academic courses, published papers about their theories, and organized formal congress meetings to assemble their community, that would not be the factor for turning homeopathy and creationism into sciences; the same is true for other doctrines.

Hansson [7] also mentions that even in the field of humanities extremely dubitable theories are also present; for example, the holocaust deniers and the ancient astronaut theorists. To avoid a division between pseudohumanities and pseudosciences and accurately acknowledge the endeavor that aims to provide us with the most reliable statements that can be made in our time, the broad definition of science is suitable.

When a statement is supported by a sufficient amount of evidence, it is epistemically justified. Sufficient evidence is what makes a belief reliable, as it provides good reason to think that the proposed hypothesis is probably true. The fact that science is the practice that provides the most reliable statements means that it is the one that presents the best and most robust evidence regarding its objects of study. Controls and adjustments are constantly being made to get closer and closer to an adequate description of reality.

For example, when someone wants to conduct an empirical investigation about whether or not some new treatment works, a randomized double-blind placebo-controlled trial is more reliable than an anecdotal case report, as it is more likely to show results that actually reflect reality than the anecdote. With the first, there is a systematization of its investigations and control of biases, which is absent in the second. In this case, for hypotheses that require empirical analysis of that kind, it is more appropriate to use the first type of study precisely because it is the one that provides the best evidence, and its proper use makes that investigation scientific. On the other hand, using methods with low standards of investigative quality, such as anecdotal cases, would not be scientific.

Therefore, for Hansson [7], pseudosciences can also be failed versions of sciences within humanities, and not only within sciences in the traditional meaning of the word. He defines *pseudoscience* in the following way:

“A doctrine is a pseudoscience if and only if it satisfies the following two conditions:

- A. It includes at least one statement which (A1) pertains to an issue within the domains of science in the broad sense (the criterion of scientific domain), and (A2) suffers from such a severe lack of reliability that it cannot at all be trusted (the criterion of unreliability).
- B. Its major proponents try to create the impression that it represents the most reliable knowledge on its subject matter (the criterion of pretence)” [6 p.49-50].

Hansson tries to distinguish disciplines from doctrines. Not every doctrine is pseudoscientific, but every pseudoscience is a doctrine. He defines a doctrine using the Oxford English dictionary, as follows: “a set of interconnected statements that is ‘taught or laid down as true concerning a particular subject or department of knowledge” [6 p. 49]. In a doctrine,

methodologies and statements are based on assumptions, and without them, there is no doctrine. In some cases, these statements may be well-founded by evidence, an example being the theory of the evolution of species, while in others they may not, such as for psychoanalysis, which will be shown in the following sections.

Similarly as what Hansson argues [6], If its most central ideas were removed from the psychoanalytic doctrine, as for example, about the existence of a psychodynamic unconscious, there would be no more psychoanalysis. The same would happen for the theory of the evolution of species: if the statements that living beings undergo natural selection, that more adapted individuals are more likely to survive, or their other claims were removed from it, then nothing would be left. This is different from a discipline: in disciplines, there are no presupposed methodologies or statements. Usually, disciplines refer to a field of study. Two examples could be psychology (when a specific psychological approach is not assumed beforehand), and biology, regarded as "the study of behavior" and "the study of life", respectively.

It is important to notice that psychoanalysts do not need to claim that psychoanalysis is a science; certainly, part of the community agrees, while the other part disagrees with this statement, but what is explicitly said about the scientific status is not relevant at all. If a doctrine behaves as if it was a science — that is, if their proponent's attitude implies that the assertions of the doctrine about the world are the most reliable in regard their object of study— regardless if it is explicitly presented as a science or not, it is already qualified to be judged by the demarcation criteria.

Even after this explanation, defining the meaning of science and pseudoscience does not show what one should investigate regarding a specific doctrine in order to check if it is pseudoscientific. Hansson [7] addressed that previous demarcation proposals could not solve the problem and suffered a series of criticisms. Then, he proposed an alternative: a multicriteria list, constructed as a list of mistakes that can be made by pseudoscientific theories, but, unlike a sufficient and necessary criterion, it is not exhaustive. That means that a theory or assertion can be pseudoscientific even if it does not fit in all of the rules, and there is a possibility for it not to be despite classifying as one of them. It would work





as a tool that makes practical doctrine evaluation possible, besides the sufficient and necessary definition. It is important to notice that in most cases, if at least one of the items from the list matches the evaluated theory, then it is probably pseudoscientific. Hansson's proposal is the following:

- “1. Belief in authority: it is contended that some person or persons have a special ability to determine what is true or false. Others have to accept their judgments.
2. Unrepeatable experiments: reliance is put on experiments that cannot be repeated by others with the same outcome.
3. Handpicked examples: handpicked examples are used although they are not representative of the general category that the investigation refers to.
4. Unwillingness to test: a theory is not tested although it is possible to do so.
5. Disregard of refuting information: observations or experiments that conflict with a theory are neglected.
6. Built-in subterfuge: the testing of a theory is so arranged that the theory can only be confirmed, never disconfirmed, by the outcome.
7. Explanations are abandoned without replacement: tenable explanations are given up without being replaced, so that the new theory leaves much more unexplained than the previous one” [7, p. 72-73; 8].

At the end of the seventh item, for considering it to be insufficient in addressing other problems concerning the behavior of certain theoretical explanations, the addition of an eighth will be proposed: obscurantism. This new demarcation of pseudoscience proposal, supported by the multicriteria list, makes it possible to evaluate if psychoanalysis is a pseudoscience or not, by analyzing how it relates to each of the items described.

## Results and Discussion

### Belief in Authority

Psychoanalysis is a “testimonial science” [4]; its theoretical concepts rely on its major proponents' clinical case interpretations. However, the authority argument is not sound if the authors do not have sufficient proof about what they say. Freud did not make use of systematic and controlled scientific investigations and not even statistics to achieve his conclusions [9], making it imperative for the reader that consults the foundations of the theory to trust that he possessed both different and special capabilities to find out the truth about how human psychology works. However, there are no reasons to believe that a human being that resorts only on his personal experience and decides not to use scientific tools would have the means to formulate the most epistemically warranted psychological theory.

The other major psychoanalytic authors have also followed Freud's steps. For one to believe in Lacan's discourse, for example, it is necessary to first take it as true and attribute him an authority role, since the reader has neither a way to verify its claims independently, nor the resources to explicitly understand its meanings [10]. Besides that, in the founder's case, reasons to take his narratives into consideration might not even exist. When the topic is psychoanalysis, its proponents' honesty is an important aspect to be observed, precisely because the theory is based on their authority [4]. If there is no honesty, there should not be any reasons, even for those unaware of the problems related to anecdotal evidence, to continue adopting their assumptions.

Dersken [11] demonstrates that Freud frequently used a variety of rhetorical strategies to avoid criticism and keep his theory's good appearance in front of the public, and he succeeded. The psychoanalyst affirmed several times that his theory did not consist of speculation, in an attempt to convince his reader that a solid empirical basis supported his conclusions, even while having none. To deal with the most severe counterarguments, he inverted the speech roles: Freud himself presented objections to his own doctrine in the most threatening way possible, and by doing so, it sounded like he was aware of the problems and would know how to reply to them. What other reason would he have to bring up all the criticism without knowing how to defend his theory from it? Even so, at the end of his discourse, the supposed reply was only evasive, the original

topic was altered, the burden of proof was inverted, or absolutely no answer was given, maintaining the original critiques still untouched.

Crews [9] argues that during several moments Freud adjusted his narratives in order for them to fit in the result he previously aimed to achieve, no matter if what he was saying was really true. Many of his clinical cases developed in ways that were distinct from what was declared by him, went through a biased interpretative process, or did not obtain promising results. Anna O. was not someone with hysteria; in fact, she suffered from a chemical dependency of substances like morphine and chloral hydrate, and all her symptoms could be listed as possible effects of these [9, p. 354-360]. Dora, a young victim of sexual harassment, was reported as a protagonist of a hysteria case for not desiring to be involved with her abuser and feeling repulsed by his advances [9, p. 590-600]. In the Little Hans case, a five-year-old, Freud did not hesitate to give him a diagnosis even before knowing him personally: his fear of horses was in fact a fear of being castrated by his father, since Freud believed he sexually desired his mother [9, p. 645]. The Wolf Man was declared as cured by Freud; however, he kept being treated by several different analysts for decades, not obtaining any results [9, p. 651; 12].

Those are just some examples of famous clinical cases, but others suffer from the same problem [9]. The success of these kinds of adulterations and other rhetorical strategies contributed to the building and widespread recognition of Freud's authority role, as well as masking how fragile his proposal was.

## Unrepeatable experiments

As discussed earlier, the theoretical concepts in psychoanalysis are sustained by Freud and the other major proponents' clinical case reports, who also followed his tradition of producing anecdotal evidence. Until today, they maintain their authority over contemporary analysts:

“André Green, when asked about what was new in psychoanalysis, answered: Freud. To this playful, but nonetheless very accurate answer, we could add the list of the great thinkers and practitioners of psychoanalysis who were essential to the several traditions in which the psychoanalytic movement was divided since

the '40s. Decades after their deaths, they continue to be what exists of new, as long as we know how to read them" [13, p. 10].

Although anecdotal evidence is still being used, in most cases, as the major means of psychoanalysis dissemination and production [14], important obstacles are placed when they are employed. A psychoanalytical clinical case is a type of process that cannot be replicated because it addresses a single subject individually. However, as Schmidt [15] argues, replication is one of the most central processes within empirical sciences, and sadly not even psychology gives proper attention to the matter. It possesses five major functions: control sampling errors, by verifying if the results obtained happened by chance alone; control internal validity, that is, if the procedures adopted were adequate to answer the research's question; control the possibility of scientific fraud; allow a generalization of the findings to a larger/different population; and finally, verify if the first hypothesis of the experiment was correct. In the case of an unrepeatable experiment, the possibility of performing these analyses is thrown away.

Besides the impossibility of replication, there are other problems, now related to human psychology: People are commonly victims of cognitive bias that distorts their judgment and leads to irrational interpretations more frequently than they usually notice [16], and therapists are not immune. An example could be confirmation bias: someone's initial belief significantly impacts how they remember situations and how they interpret them, giving more importance to what apparently confirms their world view rather than paying attention to what could contradict it. In the case of a psychoanalyst, this could bring them to understand exactly what they yearned to, that is, what would supposedly confirm the analytic hypothesis, regardless if that was or was not the case [14, p. 139-140]. Even if a case report is not a good evidence, it would sound like a source of theoretical confirmation for an adept, as it is expected that it would reflect their own preconceptions.

As Spence [17] shows, even if someone wished to analyze the veracity of the reported clinical phenomena, the person still has to face the fact that they are frequently replaced by fictional narrative. Their contents could be partially reported, omitted, distorted, and mixed with other case contents, even in a non-intentional way, precisely because they are based on the

therapist's memory. Psychoanalytical clinical case reports are not sufficiently controlled, so when they aim to support a human psychological theory, they end up being just fuel for a system of self-confirmations. There is no way to generalize a human psychological theory based on anecdotal clinical evidence, neither to guarantee its reliability, because a non-systematized process does not aim to control variables that can interfere with the conclusions. At the same time, there are reasons to expect that distortions are going to happen.

## Handpicked examples

As already discussed in previous sections, the widespread use of anecdotal evidence would be an excellent example to fulfill this third criterion, precisely because those cases are isolated and exposed to bias. However, along with them, another endeavor of contemporary psychoanalysis is neuropsychanalysis. Neuropsychanalysis is a movement that looks for an integration between neuroscience and psychoanalysis, and despite being rejected by part of the psychoanalytic community that wants no part in it, some others consider it to be a contemporary version of the theory.

Callegaro [18, p. 207-20] argues that, instead of what the neuropsychanalytical movement declares, the scientific literature shows something opposite to union: The evidence from neuroscience either refutes or directly conflicts with psychoanalysis. It is not as if it was plausible to use psychoanalysis as a reference model; it is in the new unconscious model that neuroscientists rely on, and not on the psychodynamic one.

Paris [14, p. 94-99] argues that neuropsychanalysis is not operating in order to evaluate Freudian and neuroscientific theories in an unbiased way, but rather starts from the principle of validating Freud's model beforehand, even though it showed not to have a consistent hypothesis with modern neuroscience. The author lists some reasons that show why neuropsychanalysis is far from science: In this doctrine, it is previously assumed that Freud was right, and research would serve the only purpose of proving what was already obvious from the psychoanalytic point of view; the majority of neuropsychanalysis papers do not present concrete data,

but theoretical speculations; methods used to measure basic psychoanalytic concepts are still pretty rudimentary; and, finally, there are many difficulties and problems, even in neuroscience itself, to adequately locate mental functions in specific brain areas.

In the end, it is noticeable that neuropsychanalysis consists in a great cherry picking of data, in which its proponents “attempt to systematically associate almost every neuroscientific concept or finding with a quote from Freud” [19, p. 170], giving the impression that when neurological phenomena such as anosognosia, memory problems, brain damage and others are associated with concepts from the Freudian model, that would mean that they were, from the beginning, an adequate theoretical explanation given by its founder, but that is not the case.

## Unwillingness to Test

Most psychoanalysts assume as true that human subjectivity is above all possible scientific analysis [20-21]. Thus, since the foundation of psychoanalysis and until the present day with its contemporary version, psychoanalysts carry on the tradition of being resistant to testing their hypothesis, whether they are about clinical effectiveness or theoretical constructs. Melanie Klein, for example, can be “dismissed (...) from the point of view of empirical science (...) while many of Klein’s ideas were based on what she called ‘infant observation’, they actually consisted only of speculations about what infants might be thinking” [14, p. 55]. Also, “there has never been empirical research on any of the constructs that Lacan proposed” [14, p. 122], and “neither neo-Freudian models, nor ego psychology, nor relational psychoanalysis, nor self-psychology, have ever conducted empirical investigations of their theories, or of the process and outcome of the treatment approaches derived from these ideas” [14, p. 55-56].

Despite the different opinions in the psychoanalytic community about the scientific status of the doctrine, it is possible to observe that the majority of adepts have great resistance towards the adoption of systematized tools and processes for data collection, under the argument that their object of

study, humans, are too singular and unique to be understood by a supposed “positivistic science”, in which only empirical experiments are allowed [22]. It is explicitly said by psychoanalysts, for example, that they believe “that today it is essential to demonstrate that psychoanalysis does not need new scientific foundations that would be provided in a 'systematic' and 'safe' way” [23, p. 15], that the psychoanalytic cure could not be apprehended in terms of efficacy criteria, as would be done in psychiatry [24], and that the establishment of criteria for assessing psychotherapeutic effectiveness would be considered a threat to subjectivity [20]. There is even a clear opposition to those who seek these objectives:

“What we can perceive in contemporary times, is that many professionals in the psi field, when they come across the symptom presented by the individual, seek to annihilate it, not taking into account the ethical dimension through which the symptom manifests itself. This means that the vast contemporary psychotherapeutic proposals that announce to the world a way of treatment increasingly supported by science, in addition to the current proposal in the field of mental health that plays insistently with the possibility of defining a common norm, are not committed to the experience revealed by psychoanalysis (...). We will see that psychoanalysis poses itself as an obstacle to this psychological and medical attitude” [25, p. 242].

As previously seen, using the broad definition of science, disciplines such as philosophy, history, linguistics, and other humanities can be considered sciences, even without using traditional experimentation, because the most adequate methods to look for truth in those particular circumstances are being employed. However, psychology and psychiatry are not in the same situation: There is no reliable way to acquire the most epistemically justified beliefs about human behavior without resorting to systematic empirical methodologies. Humans do not have the ability to, using only speculation, develop reliable enough beliefs about these topics. Therefore, while psychoanalysis rejects those methods, it cannot be the most reliable psychological doctrine of our time.

Instead, some of its adepts are aligning it to relativistic positions. This fuels the notion that science is only one more discourse, and it could not claim to have better interpretations about reality than any other:

“The fact remains that science is a discourse. As banal as that statement may seem, it implies a dethroning of Science and a reassessment of science as one

discourse among many. Freud may be interpreted as translating 'rationality' into 'rationalization', and Lacan's discourse theory suggests that there are as many different claims to rationality as there are different discourses" [26, p. 138].

Science is accused of being the real dogma, and psychoanalysis then comes to break it [27]. Therefore, it does not have to bow to its methods, including systematic testing [22]. In fact, some aspects of the psychoanalytic doctrine have the stated purpose of serving "as an epistemological obstacle to the attempt of scientifically addressing the psyche" (p. 237), and also to the evidence based treatments of mental health disorders [25]. Psychoanalysis requires the unreasonable: it demands special protection and would not admit being judged like any other scientific doctrine should be, while also aims to have a similar status that any other would have. However, if the same level of recognition and appreciation is demanded, then it must be evaluated by similar requirements for rigor and presentation of evidence.

Despite the majority of the community being averted to hypothesis testing, there are some exceptions to this rule. Attachment theory is probably the most promising contemporary revision of psychoanalytic theory, for being the only one that is more open to the testing of hypothesis and empirical research [14, p. 62], and for the same reason it is rejected by other psychoanalysts as something that is not legitimately part of the doctrine [14, p. 56-57]. Unfortunately, attachment theory does not consider genetic and temperamental aspects [14, p. 58], and its predictions between child attachment patterns and adulthood are very weak [28], while psychoanalysis places the major causes of adult psychopathologies precisely in the childhood.

About psychoanalysis as a treatment: even though there was great resistance from the community, some studies on its psychotherapeutic efficacy were conducted. Nowadays, long-term psychotherapies usually do not have convincing evidence for their effectiveness, and in this category long-term psychodynamic psychotherapy is included [14]. One example can be observed with the Leichsenring and Rabung meta-analysis [29]. Despite being one of the most cited works done to evaluate this kind of psychotherapy, it was severely criticized for failing in all the quality criteria required of meta-analyses [30]. One of the common strategies that



psychoanalysts adopt to deal with the lack of good evidence is turning to their personal experiences, and this can be observed in the following report published by the International Psychoanalytical Association:

“It is easy to be critical of psychoanalytic studies. There are no definitive studies which show psychoanalysis to be unequivocally effective relative to an active placebo or an alternative method of treatment. There are no methods available that might definitively indicate the existence of a psychoanalytic process. Most studies have major limitations which might lead critics of the discipline to discount their results. Others have limitations that are so grave that even a sympathetic reviewer might be inclined to discount the findings. (...) As psychoanalysts we all know that psychoanalysis works. Our own analytic experience is probably sufficient in most instances to persuade us of its effectiveness” [31, p. 283].

When compared to long-term psychodynamic psychotherapy, the short-term psychodynamic one has a higher number of studies reported in the literature, with mostly favorable results [14]. However, psychotherapy in general faces problems with higher complexity than this article can cover. The majority of results on the topic, no matter what type of psychotherapy is investigated, tend to show positive effects, with few exceptions. Although, there is evidence that, in many cases, those results are biased or have questionable methodology.

Dragioti [32] conducted an umbrella review of meta-analyses about various types of psychotherapy (including psychodynamic). They realized that only 16 of 247 meta-analyses (7%) were capable of providing good evidence without bias, and none were from psychodynamic or psychoanalytic approaches. Besides the discussion about psychoanalysis's scientific status, this is undoubtedly a topic that requires more attention from clinical professionals, psychologists and psychiatrists.

## **Disregard of refuting information**

There is evidence that many of the key concepts of psychoanalysis are wrong, but notwithstanding, they keep being adopted in Brazilian universities and as a theoretical basis for clinical practice. The empirical literature did not support the psychoanalytical theory about dreams [33], memory or repression [34]. The brain does not work making permanent

recordings about situations that are then repressed [14, p. 30]. Despite recognizing that unconscious processes exist and significantly impact human beings, the psychodynamic unconscious that is governed by repressed desires and drives does not receive empirical support [14, p. 29-30]. As an alternative, the new unconscious theory is more coherent with contemporary discoveries in the field of neuroscience [14, p. 29-30; 18].

Psychoanalysis ignores other possible variables, like genetics, social class, and more, treating a single and specific traumatic event that happened during the subject's childhood as the causation of present disorders. However, there is no good evidence of causal links between specific, traumatic childhood experiences and disorders in adult life [35]. Other stressing events that happen during an individual's life are much more impactful than the infancy ones, and social disadvantages could better explain the worse mental health outcomes of these groups [35]. There is no good evidence that remembering past events would be a good route to cure psychopathological symptoms, despite it being the usual route of analysis [14, p. 107]. Even with all those disparities between scientific data and the analytic view, those concepts are kept alive until the present day.

## **Built-in subterfuge**

This item covers similar aspects to Popper's criticism. However, it is not the same as the falsifiability criterion, since what matters for falsifiability is the possibility of a given theory to be proven false. For Popper, there is no such thing as "confirmation" by induction. This item proposed by Hansson better encompasses theory designs that are always confirming, or that can only confirm the original hypothesis, in which alternative outcomes are not possible. About the topic, Rillaer [36] provides a group of examples of why psychoanalysis cannot be disconfirmed, only continuously confirmed. With it, everything could be explained in the light of unconscious processes, and finding contrary evidence would be inconceivable:

"Have you forgotten your umbrella in a friend's house? You want to come back to his house. (...) Does he react badly to your interpretation? 'He is defending



himself', he is resisting to the 'id' that talks inside him, 'without the ego noticing'. Does he criticize Freud or Lacan? He is revolting against the Father. (...) Does your son fear horses? He fears being castrated by his father because he desires his mother. Does your analysis make you suffer more each day? You are finally entering the deepest layers of your unconscious. Do the analyst's prices seem excessive? You are having a 'negative transference' or a 'regression to the anal-sadistic stage'. After five years of analysis, do you still feel painful symptoms? You have not dug deep enough, you desire to suffer because your superego is excessively strong" [36, p. 154].

A psychoanalyst could counterargue that this would be a case of wild psychoanalysis, and within the clinical context they would not impose interpretations, but instead would build them in a unique relationship between therapist and client, reserved for the clinical environment [37]. However, this does not refute the objection that psychoanalysis is a system that operates by those rules. It is not for the depth of the dialogue or the time of interaction that it would happen differently.

Boudry and Buekens [38] argue that psychoanalysis operates similarly to a conspiracy theory, in which criticism can always be labeled as derived from resistance, and in the case of psychoanalysis, it is an unconscious resistance. Not even a critic or patient's rejection of the analytic explanations could be seen as a possible counterexample: It would only be a major confirmation that unconscious and unobservable processes are happening. Also, if they agree with the offered interpretations, the explanation stays the same: It was a process originated from the unconscious. In the end, when dealing with the psychodynamic unconscious, there is no possibility to accept contrary evidence. In relation to psychoanalysis, for all circumstances "interpretation can be a weapon" [39, p. 12].

Therefore, the excessive number of explanations that would fit all the possible cases is not really explicative; it only seems to be. The chosen interpretations to deal with the variety of human psychological phenomena are not based on good and carefully collected scientific evidence. Instead, those are concepts that lack empirical support, used to explain every behavior and also its opposite. "Psychoanalysis is indeed irrefutable, because it can say everything and its opposite — summoning up the

'servile' unconscious testimonial is enough, as it is always ready to bow to the circumstances' demands" [40, p. 140].

## **Explanations are abandoned without replacement**

The definitions given to the concepts of "cure", "health" and "disease" in psychoanalysis fit this criterion. Neves [23] says that the discussion about the cure in contemporary psychoanalysis cannot occur if it does not start with a critique of the traditional meaning of the term, and the same goes for the other two concepts. The author argues that psychoanalysis understands that, according to medical point of view, which adopts the traditional use of these, a state of health should refer to a harmonious state, completely free of diseases and pathologies. In addition, unlike medical objectives, Prizkulnik [41] states that "psychoanalysis is opposed to the objective of mental health to reintegrate the individual into the social community". Still according to Neves [23], psychoanalysts understand that in medicine "cure" would mean conforming to an idealized mode of operation based on ideas of normality that are socially accepted and expected, starting from the elimination of diseases and the reestablishment of the previously present health state. Or, more succinctly, it would be "the realization of an experience that leads the individual to health through the elimination of the disease" [23, p. 33].

Considering the traditional definition, psychoanalysis would accuse the existence of hidden intentions behind the goal of curing people in distress: this would, in reality, be an attempt to exert social control [23, p. 16]. Therefore, it would make more sense to be helpless instead of cured, since:

"We must not forget that being helpless, from both psychoanalytic and political points of view, means to a large extent having crossed the ghost of infinite protection by the instituted power. To be helpless (...) is to sustain the political action as an action that forces the impossible not to cease not writing itself in the situation" [23, p. 28].

For some, like Nasio, it would not even make sense to conceive healing as a concept:

"We cannot say that the cure, understood as a reduction or disappearance of suffering linked to symptoms, is a psychoanalytic concept. We also cannot say it is an objective towards which the treatment should aim, or a criterion that allows us to evaluate its progress (...) we cannot make cure a concept, or an objective, or a criterion, and that is equivalent to not giving in to the influence of the medical model, which tends to hypostasize this cure, to give it a status, to elevate it to the dignity of a concept (...) there is no psychoanalytic concept of cure, and that cannot be a goal that the analyst should pursue in their practice, differently from how it happens in medicine" [42, p. 160].

Even with these considerations, some proposals for new definitions were supposedly made, in order to replace the traditional ones; however, they are usually empty and worse than the previous ones. "Health in psychoanalysis can only be understood as a normativity that becomes individualized, so it is impossible to think of it as the expression of an absolute value, that is, of a general norm" [23, p. 28]. It could also be added the observation that "it is true that psychoanalysis does not take health as a constitutive element of its ethics and cure policy" [43, p. 23]. Regarding the definition of disease, we can understand it in psychoanalysis as being "a productive experience of indeterminacy" [23, p. 18], while also considering that "the disease, whether it be psychic or organic, does not mean anything other than the reduction of the tolerance margin for changes in the environment" [23, p. 28]. In fact, they affirm that there is something special within the field of disease: "being sick is, initially, assuming an identity with great performative force" [44, p. 293], and the curative ideal "aims to weaken the power that inhabits the experiences of the pathological, the abnormal, the inhuman and of helplessness" [23, p. 21].

As for the cure, several options are offered in psychoanalysis. Some of them are as follows: "getting cured is, therefore, to build and experience a new order, that is, the cure involves experiencing unprecedented ways of adjusting to the environment" [23, p. 18]. Or also, "to carry out an experiment that is nowhere and cannot be registered in the situation" [23, p. 8]. For psychoanalysts, "the cure in psychoanalytic experience can be defined, fundamentally, by the idea of transformation, that is, the realization of a subjective experience that is not the reestablishment of the norm nor the expected result of performing a treatment method" [23, p. 84]. Dunker and Peron [24, p. 89] argue that the concept of cure can have

different interpretations based on Freud's work, in addition to not being related to traditional medicine. One of them could be that the "cure coincides with the knowledge of the causes of the symptoms" [24, p. 86]. In Neves's [23] view, Freud and Lacan's works have as their legacy the definition of cure as an experience that touches the impossible [23, p. 25]. According to Nasio "the cure is an imaginary value, an opinion, a prejudice, a preconception, just as nature, happiness or justice are" [42, p. 160]. Not only that, but according to the definitions given in psychoanalysis, "the cure as the realization of a singular experience will not be identical to anything" [43, p. 24]. In any case, it is important to be aware of the fact that even if it is understood in these ways adapted by the doctrine and even by Freud himself as a "reorganization of the Ego", it remains as an ideal that is "harmful to the analysis and to the psychoanalyst" [42, p. 167]: a therapist who seeks the cure of his patient would possibly be under the influence of feelings of pride and narcissism [42, p. 168]. Psychoanalysis, even though it is treated as a psychotherapy, does not have curing as a goal as seen in Lacan's words, quoted by Nasio:

"(...) the mechanism (of analysis) is not oriented towards the cure as a purpose. I am not saying anything that Freud has not already powerfully formulated: every inflection towards the cure as a purpose — making the analysis a pure and simple means to a precise end — gives something that would be linked to the shortest path which could only falsify the analysis" [42, p. 159].

For psychoanalysis, the definition of cure as an experience that leads to health must be replaced by an experience that is nowhere, does not concern any possible situation, has nothing to do with the objectives proposed by a treatment, and is impossible. It would not be identical to anything, and if it is not identical to anything, it could not even be identical to itself, and that would constitute a logical contradiction. In psychoanalysis, the cure is imaginary, and even harmful. In the case of health, this would be an individualized normativity that is not included in the ethical demands of the doctrine. Meanwhile, attempts to treat illness are accused of being attempts at social control, and influenced by narcissism and pride. Diseases and pathologies could not, in psychoanalysis, be considered as a deviation from the organic standard, but instead they are classified as sources of some kind of renegade power,

instead of suffering. These concepts, in their many variations, are supposedly presented as possible replacements for the traditional concepts of "cure", "health" and "disease". However, even though the traditional definitions can be criticized and have gaps, the definitions adopted in psychoanalysis make these concepts much more vague and distant from reality than their original versions, with some of them to a point where they are no longer comprehensible. This makes the new proposal much less explanatory than the traditional one.

In this situation, there are at least two problems: in addition to having explanations (in this case, definitions) abandoned without a good replacement, this is a case of obscurantism. Considering this aspect of the doctrine, which is not restricted to the definitions of the three concepts presented in this section, this may suggest that the seventh criterion in Hansson's list may be insufficient to capture other problems related to the way in which explanations of a pseudoscientific doctrine are treated. Taking this into account, in this article a new item will be proposed, introduced with an eighth item to be added to the original list. It could be described like this:

8. Obscurantism: The theoretical concepts or statements of a theory have a nonexistent or nebulous meaning to the understanding, which allows the realization of arbitrary changes, that is, without plausible justifications for doing so.

## **Obscurantism**

A lot could be said about the obscurantism problem, its relations with pseudoscience, and its pertinence as a part of a demarcation criteria. However, there is not a claim of being exhaustive in this section, despite being offered the following explanations for the introduction of this new item:

Obscurantism is a communication style, commonly adopted by pseudoscientists as a rhetorical strategy, that happens when the presentation of the assertions or concepts in a theory is done in a significantly imprecise way, preventing an adequate comprehension of its proposal. This protects it from objections: Since its definitions are

excessively vague, it is always possible to accuse the critic of not comprehending it, as well as alternating the definitions in order to adopt or abandon its numerous meanings, using them respectively in the most opportune moments.

An obscurantist text, despite appearing to bring a robust content about a topic, in fact does not [10]. This seems relevant especially when comparing it to the definition of pseudoscience: Similarly, in the obscurantism case, an impression of scientificity is created when in fact there is a considerable distance from science (in the broad sense). For that reason, the introduction of this item seems justified.

In some obscurantism cases, a series of claims are made, but in reality, they are proclaimed as phrases that lack truth value, that is, phrases that cannot be true or false. In others, even if some meaning could be salvaged, an unclarity is imposed under their real definition by the own author, preventing readers from tracing precise or consensual interpretations about what they intended to say. This creates more difficulties for placing objections: It is harder to criticize a position that one cannot adequately comprehend compared to another that exposes its arguments explicitly and clearly. Also, it is important to notice that, under many circumstances, concept changes are welcome in science, but in order to do so, reasonable justifications must be presented. This is not taken into account by the obscurantist.

In the case of psychoanalysis, some things have changed from Freud's times to the present day, but despite not being many, they also were not adopted based on the emergence of good evidence. The great psychoanalytical theories of the present are still used, adopted and taught without going through empirical testing [14], showing that the changes were arbitrary and probably aimed just to adapt to each age's cultural climate. An example of this could be the change in the pathological status regarding the sexual orientation of gays and lesbians, as well as penis envy [4]. A theory supposedly evolving and changing its concepts over time only has merits if those changes are made based on good evidence, and not only by cultural influence; after all, even religious movements change their explanations about the world as the centuries go by, and this is no reason to classify them as scientific.



Cioffi [4] points out that the etiological role of sexuality suffered with an opportunistic change of meanings. Ideas about sexuality, eroticism, and libido had their definitions chosen arbitrarily by Freud according to the context: When questioned by the skeptic, they became something that would represent fraternal love, affection, or in the case of sexual drives they would be desires that could be satisfied by using a variety of senses, including non-genital ones. Meanwhile, in safer and more receptive environments, those conveniently change back to mean "sexual" in the traditional sense.

"As psychoanalytic theory is entirely empty, it is also, at the same time, supremely adaptable. When some concept of the theory shows to be hard to sustain, or even downright embarrassing (...) it is enough to silently abandon it and take a new theoretical rabbit out of the immense top hat of the unconscious. This is what psychoanalysts like to describe as the 'progress' of psychoanalysis (...). What is given as progress in psychoanalysis is nothing but the ultimate interpretation, that is, the most acceptable in a specific institutional, historical or cultural context" [40, p. 140-141].

Buekens and Boudry [10] show that Lacanian psychoanalysis is another example of obscurantism. Lacan assumes that the unconscious is structured as a language, and defends that his writings are equivalent to the expression of his own unconscious. The adherence to an obscurantist style is, therefore, justified from his point of view. In this way, any systematic effort to interpret him would be destined to fail, and this immunizes the doctrine against any possible criticism. Even if Lacan gave the impression of being an authority about human psychology that would transmit his ideas through occult means, it would be up to the reader to interpret him (in the countless ways of doing so), while still being susceptible to possible accusations of not really understanding him.

Buekens and Boudry [10] argue that since it is not possible to trace definitive conclusions about what Lacan really meant to say, the only thing left for the reader is to subjectively interpret him according to their personal experience, what creates a significant divergence of interpretations by the adepts themselves. The psychoanalyst not only used an obscurantist language in his works, but also assumed and defended its use explicitly:

“I would say that it is with a deliberate, if not entirely deliberate, intention that I pursue this discourse in such a way as to offer you the opportunity to not quite understand. This margin enables you yourselves to say that you think you follow me, that is, that you remain in a problematic position, which always leaves the door open to a progressive rectification” [45, p. 164].

## Conclusion

This article pointed out that psychoanalysis — not only on its classic, but also with its contemporary version — ends up checking all of the seven items in Hansson’s multicriteria list. It also fits the eighth item that was introduced in this work. So, in this way, psychoanalysis checks eight out of eight demarcation of pseudoscience’s items. The evidence presented in this article suggests that with both Popper and Hansson’s demarcation proposals, and taking into account its traditional and contemporary versions, psychoanalysis is indeed a pseudoscience. Even if the impression that it represents the most reliable human psychological theory is created by its proponents, that is not the case, because it considerably deviates from scientific standards of quality.

Although research in psychoanalysis is widespread in Brazil, its objections are not being discussed in the literature, and this may be an indicator of alienation [46]. The maintenance of a dogmatic approach on a doctrine inserted in the academic environment is dangerous, since it can lead to scientific stagnation and prevent the full development of its disciplines, which in the case of psychoanalysis are psychology and psychiatry. It is important to further discuss criticisms of psychoanalysis, given that it is still treated as one of the main theoretical and clinical models for the comprehension of human behavior inside the academy. Even from an ethical perspective, it is important to carry out practices and build theories that are compatible with the best scientific evidence. There is no good moral justification for believing in whatever the theory, if it does not have enough evidence in its favor [47].

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