Opinion Article

Comments on Freud and the concept of the mind and unconscious at the time of the fall of positivism

- ABSTRACT

This comment aims to bring Psychoanalysis as the precursor of a new vision about mental processes and the mind as a whole and allies this discovery to the change in the scientific thinking at the time of the beginning of Psychoanalysis, exemplified by the evolutions of quantum and relativistic physics, in counterpoint to the positivism in vogue.
For this reason, it contextualizes the theories in relation to the brain and to the brain functions at the time of Freud, that sought in each brain region the correspondent for specific functions, exemplified mainly by Gall's phrenology. Although regional correspondents to the function of language have been found, such as Wernicke's and Broca's areas, it has not been possible to date to find specific locations for complex emotions and the behavior, even with Luria's attempts. The possible analysis of a mind that goes beyond the morpho-physiological limits of the brain was Freud's great contribution to the evolution of a scientific thinking regarding mental disorders.

Keywords: psychoanalysis, Freud, modern physics, neuroscience

The knowledge about the encephalon at the end of the 19th century was scarce and marked with the beginning of ideas about the localization of the brain functions after Paul Broca's discovery of the motor speech center in the left frontal lobe [1]. Here it is important to separate Gall's phrenology, which considered the brain functions in relation to the "lumps" of the skull. The location of the brain functions in lobes and anatomical structures does not relate to the cranial elevations, because the gyri do not grow or decrease with the use, in a manner analogous to muscles, as Gall thought.

The discovery of the sensory speech area by the German Wernicke in the left inferior parietal lobe [2] fosters the idea of regions with specific functions, and starts a search for successful brain functions and positions for motor and sensory areas - culminating in the confection of Penfield's homunculi [3] relating the anterior and posterior frontal gyri, motor and sensory, respectively; but with frustrated searches for the higher functions that insist on hiding within the brain organization [4].

At that time, late 19th century, the histological structure of the brain was under discussion whether or not there were separate cells, the neurons, according to Ramon y Cajal, or if there would be a trophoblastic mass, according to Camilo Golgi; Cajal was right for a glimpse of reality, because the microscopic methods of that time did not allow visualizing the cell membranes, which would come to occur with the advent of the electron microscope in the 40s of the 20th century. The knowledge of neuroanatomy was incipient, and the conduction structure of neural impulses was not associated with cellular processes.

It was at this time, before the brain physiology had its solid bases, that Freud began to study the mind [5,6]. The functions of thought were associated with the brain and, due to the studies started by Galvani and Volta in the 18th century, it was known that electricity made muscles move, but it was not known how it could be responsible for the thought, if at all today! A situation emerges: if electric currents generate magnetic fields, the studies of the brain's

Comment [H1]: Thetitleisclear,anditcorrespondsa swellwiththecontentofthearticle.

Comment [H2]: Thisanstractpresentaswellthecont entofthearticle,asitbeginswithaimdrawingamapbetwe enbrainfunctionsandbehaviorofhumanknownbyPsych oanalysis,thengivingexamplesaboutsomebrain'region sactivationandtheirroles.

Comment [H3]: Alphabeticorderisrequiredforkey words.

Comment [H4]: Theauthorbeginshiscommentwit hconsentaboutscarcityinbasicsinneuroanatomy,thatco uldbedevelopedjustrecentlyinthe20thcentury.

Comment [H5]: Theauthordiveintothemainfuncti onofthebraininclose relationshipwithpsychology. Recently,organizedresearchescarriedouttorevealfunct ionalrelations'ofcloseandseparatedareasofthebrain.T hemissinglinkwasrecent technicshelpingtovisualizecellmembranes,whichsettl edwithinventionofnewapparatus.

magnetic properties have not advanced in the same way as the studies of its electrical properties.

Freud, even without the physiological and biochemical bases that could explain the brain functioning and without the anatomical bases of the brain being known, i.e., studied the parts of the mind and associated them with pathological behaviors [7]. Even if in the first topic the instances were considered as fixed (topographic model), in the second topic (structural model) [5,6], fluidity appears in psychoanalytic analyses, something similar to what Luria cites in the book "The Working Brain" [1] to explain the psychological processes with anatomical bases and in the histological organization of neurons.

This indicates Freud's analytical ability, who performed an analysis of the causes and effects of an immaterial structure, whose functions can exceed its morphological/material basis; to this day it is still debated whether the mind is derived from the brain or exceeds the physiological structure shown by its morpho-physiological structure, i.e., and he was able to transcend the materiality of the brain and find answers in the mental structures.

It can be said that, thanks to Freud, we started a deeper understanding of the immaterial mind before the material physiological and biophysical basis of the brain, due to an investigative process of human behavior that had as its foundation to decrease people's suffering.

The neuroses were the basis of Freud's investigative process that, seeking a way to understand the essence of the pathology, discovers intrinsic causes that serve to initiate the most solid concepts about mind and thought [7]. The situation is so complex that, at first, no morphological relationships are established for the unconscious, conscious and preconscious [8].

In fact, complex functions involving feelings have not been located in brain structures, much less functions derived from primitive emotions [1]. Here, I am not talking about the functions associated with the escape and fight of the survival instinct, but about the functions that are associated with the individual's life, that alter his thought structure and that can generate psychic suffering by generating emotions such as envy, jealousy, hatred, love [4].

Psychoanalysis developed with an object of study that it conceptualized itself, there was no concept of mind that Freud could use based on the positivism in vogue at the time that advocated the fact, the attachment to the observable material [9]. However, this beginning occurs concomitantly with the evolution of physics with the quantum and relativistic disciplines whose mathematical basis privileged the intuition of the scientist [10]. We do not suggest a relationship between the mind and the theories of quantum mechanics, we are just talking about the organization of the scientific thought at the time, when biology was centered in the search for locations of brain functions, but physics was breaking with positivism.

The rigorous analysis of the atom, invisible, creates a science that shows its strength of mathematical prediction by the destruction caused by the atomic bomb in World War II and breaks with positivism, as Einstein himself quotes in The Ultimate Quotable Einstein via Calaprice [11]:

> I am not a positivist. Positivism claims that what cannot be observed does not exist. This conception is scientifically indefensible, because it is impossible to make valid claims about what people can, or cannot, observe. One would have to say that only what we observe exists, which is obviously false [11].

It can be said that the demonstration of the existence of mind was shown by the pathologies whose bases Psychoanalysis started to explain in a similar way to what happened with Physics and Chemistry in the beginning of the 20th century, but without a mathematics capable of explaining the mind, due, obviously to its intrinsic complexity, which escapes from the limited scope, so far, of this science.

Freud accomplished a revolution regarding the mental health of humanity, for the treatment of the mentally ill in the beginning of the 20th century was inhumane and consisted,

Comment [H6]: Weseereconnaissanceoftheautho rtofirstdetectionofelectricityinhumanbodyduestudies byGalvani&Volta,andsuspensionofknowledgeinmag neticpropertiesofthebrain. Thenheaddssomeproofstoexcusesomelaksin Freud'sst atements.

Comment [H7]: TheauthorconfesstosomeFreud's analyses. ThenhediscussedoriginsofemotionsinpointofviewofL uriaandFerreira.

Comment [H8]: Thispartofdiscussionholdinitsfol dadeepsensofbeliefsthatjoinissueswithbiologyandphy sics.

even if they did not express themselves this way, in removing the devil from people, it seems, by the demonic action of the doctors of the time!

Freud intended to search in the physical structures of the brain for the parts that could be associated with ego, Id and superego, but he did not do it. In fact, attempts to associate psychic instances with the brain physiology were and are being made [12,13,14,15] In this sense, the idea of brain functions occurring in a continuous flow in order and simultaneously that Luria conceives seems to us to be more in agreement to explain the mental instances, which may allow the real, but not yet satisfactorily explained body-mind relation [14]

In the former Soviet Union, Vygotsky, in the second decade of the 20th century, studied cultural-historical psychology with his disciple Luria, seeking plausible explanations for mental processes on neurophysiological bases, later concluding on the importance of speech in the bases of the evolution of the individual's being and mental processes [16,17,18,19], something that should be discussed in comparison with Psychoanalysis, but, elsewhere.

From here, we conclude that Freudian Psychoanalysis was a science that, in addition to its functions of healing the mental health from neuroses and psychoses, initiated the scientific foundations of the mental structure, allowing the behavioral structure of human beings to be studied with more details before neurosciences provided the morpho-physiological basis of the brain functioning.

This discussion should be deeper, but, in this text, we intend to place Psychoanalysis as a non-positivist precursor of mind studies.

Comment [H9]: Theauthorhadexplainedthemetho dfollowedbyresearcherswhichputadeductiveapproach thatattributeddetectionofmindduesomedisfunctions,le adingtosearchforpreviousexistedfunctions,ofasearchf ororgan.
ThenhequotestheheroicstanceofFreudtoparticipateint heinserttreatmentviaphysicalstructureofthebrain.

Comment [H10]: WenoteaquotationaboutLuriast udies'origins,asproofsofdifferentopinionsfromvariou sculturesinthesamesubject.
PluralityinconceptstreatmentreinforcesFreudianPsyc hoanalysis,thatstudiesmanyentitiesaboutapparentphe nomenonofhumanconductions,actionsandreactionsas behaviour,whichpreceedneuroscience.
Discussionhasbeenclearandwenotesequenceofideas.

REFERENCES

Comment [H11]:
2.MachadoA,HaertelLM
12.Eric R. Kandel, M.D.
Theauthorshouldnottranslatetitlesofbooksorarticles.

1. Luria, A. R. Working brain. London: Basic books, 1973.

2. Machado, A. B. M. Functional Neuroanatomy. 3 ed. São Paulo: Atheneu, 2014. Portuguese.

3. Snell, R. S. Clinical Neuroanatomy. 7 ed. Rio de Janeiro: Guanabara Koogan, 2011. Portuguese.

4. Aversi-Ferreira, T. A. (2014). Neuroarchitecture and Neuroconnectivity in Cognitive and Behavioral Sciences. In: CAIXETA, Leonardo. Treatise on Neuropsychiatry: Cognitive and Behavioral Neurology and Neuropsychology. 2nd Ed. São Paulo: Atheneu, 2014. Portuguese.

5. Freud, S. (1914-1916). History of the psychoanalytic movement, Articles on Metapsychology and other works. In S. Freud, Complete Works, (vol. 14, p. 16-22). Rio de Janeiro: Imago, 1969. Portuguese.

6. Freud S. (1923-1925). The Ego and the Id and other works. In S. Freud, Complete Works, (vol. 19, p. 8-18). Rio de Janeiro: Imago, 1969. Portuguese.

7. Breuer, J. & Freud, S. (1893-1895). Etiology of hysteria. In S. Freud, Complete Works (vol. 2, p. 8-173). Rio de Janeiro: Imago, 1969. Portuguese.

8. Andrade, V. M. (2003). The body ego and the brain-mind continuum. The clinical mode of action of psychoanalysis from the perspective of the interface with neuroscience. Rev Bras Psicanál., 37(4), 1051-65. Portuguese.

9. Larrain, J. (1979). The Concept of Ideology. London: Hutchinson. P. 197

10. Manjit, K. Quantum: Einstein, Bhor, and the great debate about the nature of reality. New York: W. W. Norton & Company, Inc., 2008.
11. 11. Calaprice, Alice, ed. The Ultimate Quotable Einstein. Princeton University Press, 2011.

12. Kandel, E. R. (1999). Biology and the future of psychoanalysis: a new intellectual framework for psychiatry revisited. The American Journal of Psychiatry, 156(4):505–524.

13. Winograd, M. (2004). Thinking matter: the fertility of the encounter between psychoanalysis and neuroscience. ArquivosBrasileiros de Psicologia, 56(1):21-34. Portuguese.

14. Soussumi, Y. (2006). Attempt to integrate some basic concepts of psychoanalysis and neuroscience. Clinical Psychology, 18(1): 63–82. Portuguese.

15. Lima, A. P. (2010). Freud's structural model and the brain: a proposal for integration between psychoanalysis and neurophysiology. Archives of Clinical Psychiatry, 37(6): 280–287. Portuguese.
16. Cordeiro-de-Oliveira, K., Souza-Couto, D., Caixeta, M., Caixeta, V., & Aversi-Ferreira, T. A. (2021). Neuropsychology of the frontal lobe and III functional brain unit: A Luria's studies and perspectives for the clinic approach. *Research, Society and Development*, *10*(7):e48210716760. https://doi.org/10.33448/rsd-v10i7.16760

17. Sugahara, C., Silveira, B. F., Azevedo, A. S. F., Macena, B. B., Aversi-Ferreira, T. A. (2021). The role of the second brain functional unit II on the memory's process: A neuropsychological Luria's perspective. *Research, Society and Development*, 10(9):e27010917957.
18. Aversi-Ferreira, T. A., Tamaishi-Watanabe, B. H., Magri, M. P. F., & Aversi-Ferreira, R. A. G. M. F. (2019). Neuropsychology of the temporal lobe: Luria's and contemporary conceptions. *Dementia &neuropsychologia*, 13(3):251-258.
19. Aversi-Ferreira, T. A., Araújo, M. F., Lopes, D. B., & Nishijo, H. (2010). History, citoarchitecture and neurophysiology of human and non human primates' parietal lobe: A review. *Dementia & neuropsychologia*, 4(3):173-180.