Review on the study of the theory of the mind in pervasive development disorders and schizophrenia

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Revisión sobre el estudio de la «teoría de la mente» en trastornos generalizados del desarrollo y esquizofrenia

Summary

The theory of mind (ToM) is a new concept which could be defined as the ability to make inferences on the intentions of others. This capacity has been used to explain childhood autism symptoms and recently an attempt has been made to refer it to schizophrenia. The authors aim to review the theory of mind concept, the different questions that could appear in neurocognitive sciences and the utilities that this hypothetical model has been given in the clinical practice. The authors also consider the contributions and restrictions that its use has in the field of pervasive developmental disorders and schizophrenia.

Key words: *Theory of mind. Schizophrenia. Pervasive developemental disorders. Metarepresentation.*

Resumen

La teoría de la mente es un concepto de corta vida que se define como la habilidad de entender las intenciones de los otros. Esta capacidad ha sido empleada para dar cuenta del autismo infantil y recientemente se ha intentado traspasar a la esquizofrenia. El objetivo de los autores es revisar el concepto de la teoría de la mente, el debate que dicho concepto suscita actualmente en el campo de las ciencias cognitivas y las utilidades que a esta capacidad de mentalizar se le han dado en la clínica. Se examinan tanto las aportaciones como las limitaciones que su uso conlleva en el campo de los trastornos generalizados del desarrollo y la esquizofrenia.

Palabras clave: *Teoría de la mente. Esquizofrenia. Trastornos generalizados del desarrollo. Metarrepresentación.*

INTRODUCTION

The «theory of mind» (ToM) has been used to understand the explanations that man gives on his own behavior. It has been defined as the ability that makes it possible to understand the behavior of others and to interpret and predict one's own actions and those of others[1]. Within the framework of cognitive neuropsychology, this concept was adopted to explain childhood autism, which has the three fundamental characteristics of: autistic isolation, abnormal communication and lack of simulation game. According to this theory, they are caused by a single cognitive deficit, that is found in the mechanism that allows us to have a «theory of mind» or «mentalize»[2].

At present, this tool that has given so much fruit in the field of pervasive development disorders (PDD) is beginning to be used in schizophrenic patients[3]. It is C. D. Frith who performed the transfer of the ToM deficit studies in childhood autism to schizophrenia[4], proposing a unifying theory, that aims to explain the symptoms and signs of schizophrenia through a deficit in the theory of mind (ToM). A similar, although inverse, operation had already occurred in the concept of autism, that was transferred from the field of schizophrenia[5] to that of pervasive development disorders in the first descriptions of this syndrome[6,7].

As the relationship of the subject with the others and social interaction are a common area to both these disorders, it is interesting to study in greater depth how this neuropsychological ability (the Theory of Mind) perceives these common aspects of the PDD[8,9] and Schizophrenia and it is proposed as an explanation of both diseases, in principle different, but with certain common aspects. Thus, we propose to review the theoretical bases of the theory of mind and the contributions and limitations that this tool offers us in both the field of the PDD as well as schizophrenia.

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THEORETICAL BASES OF THE ToM

First use of the term

In 1978, Premack and Woodruf[10] used this term for the first time to refer to the ability to understand a men-

tal state of another organism (regardless of whether the chimpanzees or other superior anthropoids have this ability or not, these authors must be attributed the first use of the term and its more or less correct choice must be looked for in them. After this first use, the «theory of mind», is understood as the capacity of attributed mental states and predicting behavior of others began). The subjects of the study that they performed were chimpanzees. The choice of the term could be due to two considerations[1]:

1. Attribution of a predictive and non-empiric nature to the mentalist categories.
2. Simile with theoretical entities of the physical: in a similar way to how physical entities (ie: movement, acceleration, energy, etc.) algorithmically define networks of concepts that make it possible to predict physical phenomena as well as entities such as beliefs, intentions or desires define plots of relationships that serve to understand and predict behavior.

Attempts to formalize the term

After the study of Premack and Woodruff, the debate began in the field of Cognitive Science of the «ToM». The need to define empiric criteria that would make it possible to really attribute the possession of a theory of mind was proposed. There are two representative examples of this attempt. Both are important for this review because they also generated the carry over of new terms (metarepresentation and false belief) that have remained united since then to that of «ToM».

1. Definition of Pylyshyn (1978) of ToM in cognitive terms[11]: «Hability to have representational relationships on representational relationships or, stated in another way, the ability of having metarepresentations». The term metarepresentation has been bond to that of ToM since then, adding confusion to the question. The different authors who investigate this subject use this term with different meaning. For A. Leslie, metarepresentation responds to the internal representation of an epistemic relationship between a person, a real situation and an imaginary one (opaquely represented). The characteristic of this relationship would be «to leave pending» the ordinary relationships of reference, existence and truth between the representation and the world. For Perner, metarepresentation responds to representations of representational relationship as such.
2. Reflection of D. Dennett (1978) on the criteria to really be able to attribute the possession of a «ToM»[12]: «If an organism that we call X deliberately creates Y, a representation on a real situation in order to benefit from this false representation, in another, this would mean that X knows that Y has representations, which is the same, that X possesses a theory of the mind». This reflection made it possible for the later appearance of works on the false belief for the evaluation of whether a person does or does not have a «ToM».

The debate on the theory of mind

In the decade of the eighties, many studies, that debated on the acquisition of mentalist abilities, appeared on this open subject. The two fundamental theoretical positions are: the «theories of the theory» and the «simulationist approach»[1].

The «theories of theory»[13,14] suppose that a «mentalist competence» is necessary in order to explain how the ability to interact with other persons is acquired. For this approach, the ToM is essentially a system of beliefs. The postulates that underlie a mentalist competence are:

1. There is a combination of concepts and principles, that makes it possible to perform a basically inferential activity.
2. The use of a specific type of representations, which is called «metarepresentation» is that which makes this inferential activity possible. To possess a ToM, there must be some explicit awareness by the subject having it that he/she is a being with representations and the others are postulated as necessary. This approach suggests that there is a close cognitive relationship between ToM and the other representations and explanations that the children construct on the world. Perner accepts that this is «the representational relationships as such»; Leslie defines metarepresentation as a specific type of representations characterized by the property of «leaving pending the ordinary relationships of reference and truth between the representations and the world».

The «simulationist approach»[15,16] also attempts to explain how the ability to interact with others from the acquisition of a «mentalist activity» is acquired. For this approach, the ToM is essentially a processing system. In essence, this mentalist activity requires self-access to the mind and a simulated projection of how the world beyond the borders of the skin of others is experienced, conceived, and represented. They suggest that the ToM can function in a completely automatic and unconscious way, that is, with an autonomous and independent character («modular»). They define the following postulates:

1. The other is the same as I. The essential structure of his internal experience is like the essential structure of mine.
2. The essential substance of internal experience is like the essential substance of mine; the contents of his intentional states do not have to be as the contents of mine.

ToM IN PERSUASIVE DEVELOPMENT DISORDERS

Childhood autism was described by Kanner[6] as an innate disease that prevents the establishment of normal bonds of affective contact with persons, and that is characterized by autistic isolation, desire to preserve invariance and ability islets. Later, in 1944, Asperger described a syndrome that he called «Autistic psychopathy» as a «disorder that produces considerable and very typical difficulties of social integration»[7]. As Kanner, he suggested a disorder of affective contact and stressed the characteristics in communication, the difficulties of social integration, the stereotypal movements and the isolated intellectual abilities that these children present. This term was rescued by Wing[17], in an attempt to succeed in the recognition of these very competent autistic persons who do not adjust very much to the stereotype of Kanner of being quiet and isolated, and he formulated the symptomatic triad of Autism: deficiencies in social relationships, in communication and in the capacity to create fiction games. This last characteristic appears for the first time in the description of childhood autism. And on this basis, A. Leslie elaborated a theory that would determine the cause of autism as a neurological deficit, arguing that the capacity to create fictions arises from the same mechanism that gives rise to the theory of mind[13]. Baron-Cohen, A. Leslie and U. Frith asked: «Does the autistic child have a theory of mind?»[18]. In the field of evolutive psychology, it had been explained how a «ToM» is acquired and Wimmer and Perner (1983) designed an experimental scenario[19], that would make it possible to verify when the acquisition of this capacity took place. The event was dated at four years of age approximately. This scenario, based on the formal criteria of Dennett, is the background of the task of «Anna and Sally» who used it to demonstrate the deficit of ToM in autistic children. Thus, this «task to measure the presence or not of the ability called ToM» was applied for the first time and its alteration was used as a definition of pervasive development disorders (PDD)[20].

At present, the international committees[21,22] have defined the following criteria for the diagnosis of autism: qualitative deficiencies of the guidelines of reciprocal social interaction, of verbal and non-verbal communication and of imaginative activity; and limited repertoire of activities and interests. As we see, the essence of these criteria is not far from the classical descriptions of childhood autism.

Contributions of ToM in PDD

In the field of the PDD[23], the use of the «ToM» has two very clear contributions. On the one hand, it has permitted a large quantity of empiric studies. These studies have used measurement tools derived from the ToM: first order tasks of false beliefs (i.e., Anne and Sally) that aim to measure the attribution to others of incompatible beliefs or those different from one's own, and second order tasks of false belief (ie the ice cream seller) that attempts to measure the attribution of beliefs of a third party to second parties[24]. On the other hand, it has made it possible to develop explanatory hypotheses of clinical symptoms as the result of cognitive deficit and thus to be able to join the varied symptoms of these disorders[25]. The most extended is the acceptation of that suggested by Leslie[13]: the mind of the autistic children has a defective mechanism of «disconnection». «On accepting this idea, we see how several apparently incoherent characteristics of autism suddenly fit together like pieces of a puzzle that could not be fit in up to then. This theory can explain the three symptoms that constitute the symptomatic triad of Wing: in the social relationships, in the communication and in the fiction game»[2]. The enormous value that the work of A. Leslie has had for the study of PDD can be recognized in these sentences of U. Frith. This study has been the point in common from which different authors have begun.

U. Frith supports the analysis of Leslie and places it within his wider hypothesis: the deficit of central coherence, the impulse that gives a central coherence to all the information is weak in Autism. «Normally —says U. Frith[26]— the brain shows a strong central tendency to cohesion, the general and structural (...). When we interact with persons, we do not focus on the individual actions, but, on the contrary, we integrate the information on the person, the event and the behavior and we interpret it in light of our expectations and presuppositions and we respond to its global meaning.» He presumes that the fact that autistic children do not discover the mind in behavior forms a part of the difficulty to give a central coherence to all the information. Other authors, for example, F. Happé[27], consider the deficit in the ToM and the deficit in giving central coherence as two different cognitive characteristics; also pointing out that for the latter, there is no systematic research program such as that which has been developed for the ToM that has been designed as of yet.

Limitations of the ToM in PDD

As we have seen, the debate on ToM is not closed. In the PDD, the hypothesis that has had precedence has been that of Leslie[13]. The limitations of this modular hypothesis can be included in two groups: those mentioned by other authors who participate in the present debate on how the mentalizing capacity is acquired; and those related to the discussion framework in which this debate has taken place (the computer models that invade psychology in the last twenty years).

Limitations mentioned by other authors

The conceptual proposal of A. Leslie uses the term «theory», inspired in the formulation of Chomsky[28] on

defining both the initial competence of the individual to develop speech as well as the final competence that the speaker has in terms of a «speech theory». The term theory in this sense is generally associated to a «modular» version of the mentalist capacity or «theory of mind». A «module» in the Fodorian sense[29] is a process system that is completely «impenetrable» to the influence of information from other systems while it performs its task, that is innate, compulsive and obligatory, autonomous, withdrawn, with a limitation and restrictive specificity of domain, etc. For Leslie, acquisition of the ToM implies the madurative unfolding of a cognitive module defined by the capacity to formulate metarepresentations. The ToM would be like a reflection of a mental subsystem species that creates and manipulates representations. It would be a module that performs a special type of cognitive operations: those that consist in suspending or «disconnecting» the primary representations of the things, carrying them outside of the normal input-output mechanism. The module would have to perform the following actions: submit representations to representational relationships; submit these representations to representational relationships or propositional attitudes (such as «believe that» or «pretend that»); and interpret the metarepresentations.

From other approaches, it is criticized:

1. That it supposes that self-access to the mental experience (necessary to develop mentalist capacities) can have a theoretical, inferential and mediate character
2. That it supposes the modularity of this capacity and thus its independence from other general processes of knowledge, that are innatistic. According to Rivière[1], the most valuable of the hypothesis of Leslie is the intuition on which it is based «that the PDDs have a problem to perform which he calls pending operation. Since then, the proposal of Leslie has been becoming more complex and distant from this point, centering on the module characteristics: «triple relationship between agent, informative relationship and decoupled expression». Rivière resumes this problem, developing his hypotheses on the ToM, putting it in relationship with the development of semiotic capacities. This means taking the problem of the PDD from the explanatory framework of the ToM to another different one that comes from the object of this review.

Limitations derived from including the problem of «ToM» in the field of cognitive psychology

The framework of cognitive psychology imposes restrictions to the study of the problem treated. What does the fact that the «ToM» arises in the conceptual frame of cognitive psychology mean? That it adopts its assumptions: that it considers true that there is a legitimate level of description between the brain and the behavior of a subject: the mind; behavior must be explained by a series of mental processes and mechanisms, that are also generally specified possibly in a computational form. These assumptions do not make it possible to abandon the idea of a subject confronted with the world and others, who tries to grasp them from within[30]; they necessarily ask to postulate the existence of capacities or abilities that these achievements allow us.

In general, both the hypothesis included under the title «theories of the theory» (in this group, the proposal of A. Leslie can be included) as well as the «simulationist» approaches, try to answer the question of how the ability of interacting with other persons, of knowing the intention of others, is acquired.

Any of the given arguments originate from the idea that the subject maintains an objective relationship with reality and with the other; from this idea it becomes necessary to postulate «mentalists» activities than allow us and make us capable of having knowledge in this case of the others and their intentions. The only thing that changes in each argument is «the assembly chain» of the mechanism used to try to understand the reality of the others, but also beginning from the fact that the subject must have psychic functions, that make it possible for him to constitute the reality, in this case, that make it possible to have knowledge of the others. When all of the effort of this knowledge is placed on the subject, it becomes necessary to recur to complex processes, of reflexive structure (metarepresentation, self-access to experience and simulated projection) to explain how a child understands the intentions of others. This does no more than remind us of the problems that the previous models have already had (for example, self-consciousness), the principal problem is that, in order to realize how I know and how I realize that I know, they have to recur to a species of «inner little man» that starts up the machinery (ad infinitum hypothesis).

The fact that a deficit in the theory of the «ToM» (incapacity to attribute mental states to others) can be proved empirically and generate a prediction on the social disorder in the PDD has made the ToM an attractive resource. In evolutive psychology, the expression ToM serves as a label to designate the «development of social cognition»[31]. In this way, it is easy to understand the transfer of the «deficit of the ToM» to the field of schizophrenia as the transfer of a «tool to measure the social knowledge» in schizophrenics.

THEORY OF THE MIND IN SCHIZOPHRENIA

As we have already mentioned, the ToM comes from studies performed in childhood autism, in which it is demonstrated that the three fundamental characteristics, autistic isolation, abnormal communication and lack of simulation game, are caused by a single cognitive deficit, that is found in the mechanism that allows us to have a «theory of mind» or «to mentalize».

Within the framework of cognitive neuropsychology, different theories that try to explain the origin and main-

tenance of the symptoms of schizophrenia have been elaborated. It is in this framework and in a certain context in which it is aimed to access the cognitive approach of the symptoms of schizophrenia by the description of the abnormalities of the information processing[32].

C. D. Frith was the one who posed the hypothesis that a fault in the metarepresentation is the cause of the cognitive disorders that underlie the schizophrenic signs and symptoms. «My proposition is that persons with schizophrenia are similar to the autistic subjects in that they also have the mechanism that permits them to mentalize damage»[4]. He reaches this hypothesis from the schizophrenic signs and symptoms. He divides them into two groups: behavior abnormalities, that include the negative symptoms and two positive behavior traits; speech incoherence and incongruencies of affect, because they are evaluated by observation of behavior. These symptoms are similar to those described by Liddle in the disorganized type schizophrenia[33]. The second group is the positive symptoms, as abnormal experiences that cannot be accessed by observation. He presupposes that there is a awareness disorder in schizophrenia produced by lack of control by the upper consciousness processes (that is, the «supervisory attentional system» of Shallice) that would cause a greater influence of unconscious conditions on experience and behavior in schizophrenics. On the other hand, he affirms that it is very difficult for persons without metarepresentation to describe their internal experiences since the metarepresentation is the fundamental mechanism for the knowledge of ones self. Linking these two reasonings, he establishes a relationship between metarepresentation and schizophrenia, and argues that if the schizophrenic subject has an alteration of self-consciousness, there may be an alteration in the metarepresentation capacity. Thus, he designed three areas of self-consciousness in which metarepresentation (second order representation) plays a key role:

1. Awareness of the objectives: if this fails, there would be poverty of action, that would lead to positive and negative behavioral abnormalities.
2. Awareness of own intentions: if this fails, there would be absence of upper self-control, that is translated into abnormalities of experience.
3. Awareness of the intentions of the others: its defect would produce persecutory delusions and reference delusions.

He poses the problems that can be caused by the neuropsychological study in the search for associations between brain lesion and low performance in the tests. According to him, it is necessary to know:

1. The effects of the brain lesion on the global brain function.
2. The nature of the cognitive processes that underlie the performance of the tests. He states that schizophrenic patients have deterioration in a wide group of tests, which means that it affects non-specific processes.

He supports its theoretical construction, arguing that, up to the present, the difficulties of applying neuropsychology to schizophrenia come from the large heterogeneity found in the studies performed. He believes this occurs because they take samples of schizophrenics with a wide spectrum of signs and symptoms and that, therefore, on studying heterogeneous groups of schizophrenics, there would be deceiving results, since different cognitive deficits are associated with different signs and symptoms. Thus, he proposes to demonstrate the existence of connections between specific signs and symptoms of schizophrenia and performance in terms of cognitive processes.

Cognitive neuropsychology is used to determine the brain disorders associated to schizophrenia. He presupposes that the schizophrenic signs and symptoms are the manifestation of brain disorders and, thus, that the etiology of the schizophrenia implies an abnormal development of the brain. Thus, he mentions that the difference between mind and brain is found in different levels of explanation: «behavior and experience can be explained in terms of mental processes and physiological processes (of equal validity). The ideal is that they can be formulated in such a way that each explanation can easily stem from the other»[4].

To explain the existing clinical differences between PDD and schizophrenics, since the autistic subjects do not have positive symptoms such as those found in schizophrenics in spite of having the same cognitive deficit, he argues that there is a chronological factor, that is, the different age of appearance. In this sense, he explains that the schizophrenic knows by past experiences that it is useful and easy to infer mental states of the others, and that they will even continue to do so when the mechanism fails. Thus, deduction of the mental states will have become routine.

Contribution of the ToM in schizophrenia

With all this, it is aimed to design a unifying hypothesis that makes it possible to understand the relationship of the symptoms, the relationship between schizophrenic symptoms and cognitive deficit and the identification of the brain processes involved in schizophrenia, by a classification of signs and symptoms that facilitate experimentation, and the obtaining of objective measures that facilitate diagnosis of the schizophrenic symptoms.

Based on the elaboration of this hypothesis, whose final objective is to have proven tests for the diagnosis of schizophrenia, comparative studies are initiated[24,31,34-42] to demonstrate a fault in the tests of ToM in schizophrenics (table 1). However, the results of these studies do not correspond with that initially aimed at. From these studies, it is deduced that it cannot be verified that the essence of schizophrenia is a deficit in the ToM, since, although a fault in the tests of the ToM is observed in the results, this fault only occurs when the patient suffers a deterioration of the disease, the performance of these tests becoming normal when the acute episode passes. This could mean, in the best of the cases, that the deficit

TABLE 1. Principal empiric studies of the theory of the mind in schizophrenia

Empirical studies	*Metodology. Task to measure ToM*	*Conclusions*
Corcoran, Mercer and Frith CD, 1995	Test of «insinuation», deduction of intentions using indirect style. The IQ is not controlled	Deficit in ToM in patients with negative symptoms, thought disorders of delusional ideas of persecution
Frith CD and Corcoran, 1996	First and second order vignettes. IQ is controlled and treatment with psychodrugs	More serious alteration of ToM in patients with negative symptoms or with through disorders. Deficit in ToM: condition endpoint
Corcoran, Cahill and Frith CD, 1997	Humoristic vignettes	Major alteration in patients with negative symptoms or thought disorders. No alteration in asymptomatic individuals
Safarti, Hardy-Bayle, Besche and Widlocher, 1997	Comic strips	Difficulty in ToM in schizophrenic patients with disorganization in speech and thought
Drury, Robinson and Birchwood, 1998	Tests of second order false belief and test of metaphors to assess first order beliefs. The IQ is controlled	Alteration in the performance of the tests in patients with greater seriousness and greater symptomatic intensity. Condition endpoint
Safarti, Hardy-Bayle, Brunet and Wildlocher, 1999	Comic strips	Major difficulty in attributing intentions to the others in patients with elevated levels of thought disorder
Pilowsky, Yirmiya, Arbelle and Mozes, 2000	Tasks of real belief, of evaluative belief of deception and false belief	Alteration in tasks of false belief in children with schizophrenia. Abilities in ToM are equal in paranoid schizophrenia as in the disorganized or undifferentiated one
Safarti, Passerieux and Hardy-Bayle, 2000	ToM tasks before and after introducing oral material	Benefit of cognitive rehabilitation in the ability to attribute mental states to the others in schizophrenics
Pickup and Frith CD, 2001	Tasks of first and second order false belief. The IQ is controlled (schizophrenics with delusion have alteration in ToM, but less IQ)	Schizophrenics with behavior alterations have greater difficulty to perform tasks of ToM, but less than in autism
Mazza, de Risio, Surian, Roncone and Casacchia, 2001	Tasks of first and second order false belief	Worse results in schizophrenics than in control subjects; the results being worse in patients with psychomotor poverty than in those with distortion of reality or disorganization
Pollice, Roncone, Fallon, Mazza, De Risio, Necozione, Morosini and Casacchia. 2002	Tasks of first and second order false belief. Measurement of social function by AD and DAS. The IQ is controlled	The tasks of ToM can be useful to develp programs to reduce the social deterioration in schizophrenic patients

of the ToM is a condition endpoint and not a risk one[43]. Another conclusion drawn from these data is that the patients with negative symptoms and thought disorders present alterations in the ToM test with greater frequency, however, it would be precipitated to state that this was the result of a specific deficit of ToM, since these patients generally have more cognitive alterations, such as lack of attention or mnesic disorder, that could influence the fault of these tests.

Limitations of the ToM in schizophrenia

In the elaboration of this hypothesis, C. D. Frith does not take into consideration that the symptoms of schizophrenia used as a starting point are not specific to schizophrenia, since most of them can be found in other diseases. It also stands out that the hypothesis rests on erroneous concepts such as that the positive symptoms are the nucleus of schizophrenia and that the negative traits are a secondary consequence of schizophrenia. When a careful analysis is made of how the hypothesis arises, it can be perceived that all the theory is constructed based on the concept of metarepresentation and not on the symptoms, as he aims to demonstrate.

In the elaboration of this hypothesis, different neuropsychological concepts were continuously used with the final objective of fitting everything into a unifying theory that would make it possible to rescue the essential of schizophrenia, and that this essence resides in a deficit of the capacity of metarepresentating. This problem that we are referring to is clearly seen in the case of the negative traits of schizophrenia, which are defined as secondary to a disorder in the generation of voluntary action, since, in order to explain them at the same time as secondary to a deficit in the ToM, it is necessary to lean on the work of J. Perner «representational mind»[14], in order to demonstrate that the defects of the voluntary action come from the absence of an awareness of the objectives (which is considered as an abnormality of the metarepresentation). Furthermore, the expressions of the argument in all the preparation of the hypothesis

that are necessary for all to adjust to their purposes stand out. For example, he equals affective blunting and social withdrawal with «poverty of gesture», that is, with a lack of spontaneous action initiated by oneself; and then states that social withdrawal would be a consequence of a disorder in the recognition of the evident signs (signs made by the communicator so that the listener knows that he is going to speak).

In summary, we can state that the attempt to access the nucleus of schizophrenia through the symptoms of schizophrenia, already nonspecific, and thus rescue a specific cognitive deficit that explains the essence of schizophrenia is insufficient. As we have been discussing, this attempt is artificial and rests on weak arguments that do not support this hypothesis. A limited correspondence between that which is proposed and what is really found can be observed even in the studies performed with the intention of validating the hypothesis.

In fact, this is not the first time that an attempt has been made to grasp the essential, the nuclear of schizophrenia without ever having achieved an acceptable explanation of what we refer to or what is that which we observe in the schizophrenic patient that differentiates him/her from other psychotic patients.

CONCLUSIONS

The theory of mind arises to explain how we understand the behavior of the others. It is defined as the capacity of attributing mental states to the others. It aims to explain the problem of social knowledge. Given the reference framework in which it appears (cognitive psychology), it supposes that there can be objective knowledge of reality from cognitive processes based on modular models. The absence of this capacity of mentalizing has been related with the symptomatic triad of the autistic children.

The appearance of tasks to measure the deficit of ToM converted this capacity into a useful tool for the empirical investigation and for the clinical diagnosis. Once these advantages are detected and based on the problem of social interaction, common to both disorders, the transfer of the ToM deficit is produced, also trying to explain the symptoms of schizophrenia. However, these similar behaviors between patients with PDD and schizophrenia are the result of a very different pathway.

The attempt to unify symptoms and metarepresentational deficit made by CD. Frith in the field of schizophrenia does not succeed in explaining its symptoms and it has been carried out without reviewing the explanatory problems that this approach has. In this area (relationship of the subjects with the objects, with the others, the social interaction) in which the determining operations are not sufficient, it can be questioned whether we are not stubbornly insisting on measuring in a place where other tools should be used for the study of the patients. At present, we have one theoretical investigation and another empirical one underway to go deeper into the social interaction in both groups of patients.

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