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FORESIGHT NEUROSCIENCE: THE IMPORTANCE OF FAMILY MEDICAL ASSESSMENT IN FAMILY LAW

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ABSTRACT

Introduction:Assessing the family context in relation to mental health involves identifying causal factors, mainly in neurodevelopment, since the temporal variation of cause and effect in the neurobiology of family interactions can be directed to develop a specific clinical assessment of the child's neurodevelopment phase, through specific clinical biomarkers of cause and effect. ***Objective:*** To reflect on the facts of mental health complications in children and adults, which are being neglected by professionals, and through clinical identification and organic dysfunctions that are present in the pre-divorce periods and are complicated as in cases of parental alienation.***Methods:*** After the bibliographic review, we synthesized a model of neurodysfunctional personality in the family environment and the clinical assessment with a generative view of perception and second-person neuroscience, with a "Bayesian" computational method, which was guided by a theoretical method and robust clinical empiricism. We outlined theoretical implications and mechanisms of social predictive perception, neuromaladaptive predominant behaviors, and clinical syntheses that organize and clarify some situations of family conflicts in family courts and, at the same time, significantly influence the physical and mental health of children and family members. ***Results and Discussion:*** Unequivocally, we are facing a social and child health setback, through professional malpractice in Family Law courts, which not only determines certain health outcomes, but also establishes parental relationships in the next generations, in senility and in the prevention of chronic diseases. ***Conclusion:*** The current lack of care in the mental health of the family and children has an impact on occupational health, and legal professionals, social assistants, and doctors must obtain this knowledge and awareness about the child psychological abuse that is occurring. This work points out a problem and suggests organized methods in clinical and neuroscience, such as the evaluation of the microstructure of ONCs personality which identifies intrusive, externalizing, and egocentric characteristics, parental capacity, and mentalism. These are innovations in objective operationalization for forensic medicine and family law.

Keywords: Neuroscience, mental health care, child health, adult health

1. Introduction

Societies establish different ways of thinking and structuring their representations, thus preventing their universalization, which suggests a hypothesis of social regression.[1]

The family has never been the center of evaluation for theorists, due to the fear of reducing the scope of understanding about social representation. However, with the foundation of neurobiology and clinical neuroscience, it is possible to increase the scope of understanding and outline new prevention and treatment strategies. [2]

Based on clinical practice, researchers have identified a need to organize social representation in the family environment for reasons of collective health and well-being and have created family models with a neurobiological foundation. [3]

Such models generate a greater understanding of the genetic, epigenetic, inflammatory, neurological and endocrinological bases, which also offer a robust basis for justifying assessments and interventions to protect the health of the child, the family and future generations, since such care is currently lacking.[4]

Family-based clinical models allow testing of endophenotype criteria and, when they are faithful to the reality of the pathophysiological nexus, allow the assessment of heritability, with the association with the disease phenotype and co-segregation within families.[5]

Research on the neurobiology of parenting has defined biobehavioral synchrony, the coordination of biological and behavioral responses between parents and children, as a central process that supports the formation of family bonds. [6]

Gur et al. conducted robust research on family groups and schizophrenia, with large samples of diagnostic tests, neurogenomic studies performed, and appropriate criteria and care, and in addition to the findings in patients with schizophrenia, identified a specific pattern of cognitive deficits among their relatives associated with genetic alterations. [7]

Furthermore, other meta-analyses have reported that adult relatives of patients with schizophrenia present intermediate deficits in neurocognitive measures, including executive functions, such as working memory and attention, verbal fluency, and sensorimotor speed. [8]

Three large independent large-scale genetic studies based on family assessment: 1- Multiplex Multigenerational Investigation of Schizophrenia, 2- The Project among African Americans to Explore Risks for Schizophrenia (PAARTNERS) and 3- The Consortium on the Genetics of Schizophrenia (COGS) demonstrated cognitive deficits among relatives of schizophrenia.[9]

According to Green et al., these neurocognitive deficits are known to predict functional outcomes and to explain 20–60% of the variance in community functioning, social problem solving and acquisition of psychosocial skills. These findings demonstrate higher rates in relatives of individuals with schizophrenia than in the

general population and evidence of intergenerational maladaptive transmission.[10] However, more serious evidence of physical and mental health complications is occurring due to the lack of family and child health care in family courts.[11]

Assessing the family context in relation to mental health involves identifying causal factors, mainly in neurodevelopment, since the temporal variation of cause and effect in the neurobiology of family interactions can be directed to develop specific clinical assessments of the child's neurodevelopmental phase through specific clinical biomarkers of cause and effect. [12]

2. Objective

To reflect on the facts of mental health complications in children and adults, which are being neglected by professionals, and through clinical identification and organic dysfunctions that are present in the pre-divorce periods and are complicated as in cases of Parental Alienation.

3. Methods

A manual search was carried out in the electronic libraries PubMed and Web of Science, with the extraction of published studies on family environments focusing on maladaptive behaviors that occur between family relationships and adverse childhood emotions (ACE), associated with functional neuroimaging and neurogenetics. We reviewed neuroscience articles chosen for convenience, which presented experimental findings with clinical data from functional neuroimaging exams and which presented mechanisms that shape the perception and evaluation of people, behavior, and objects or socially relevant information.

Subsequently, we synthesize a model of neurodysfunctional personality in the family environment and the clinical assessment with a generative view of perception and second-person neuroscience, with a Bayesian computational method, which was guided by theoretical method and robust clinical empiricism.

Finally, we outline the theoretical implications and mechanisms of social predictive perception, neuromaladaptive predominant behaviors and clinical syntheses that organize and clarify some situations of family conflicts in family courts, and at the same time significantly influence the physical and mental health of the child and family members.

4. Results and Discussion

4.1 Family Law

Demographic changes and the current realities of traditional and non-traditional family structures in our society, as well as the increasing divorce rates, have widened the gap between legal precedent and current research in social sciences, as well as social neurobiology.[11]

Legal professionals have little or no formal technical training in family dynamics and especially in child neurodevelopment, but they are called upon to make decisions in complex cases that have lifelong ramifications for all family members. What interests the legal professional is whether the perpetrator of the wrongful act was conscious and self-governing at the time of the action or omission. [11] The forensic doctor has the role of clarifying justice and professional clarification

about the severity of the mental disorder present in the agent when committing the crime, or the degree of cognitive, volitional alteration, regardless of the etiology, which presents three aspects for the assessment of imputability: biological, psychological, or mixed. [12]

With the current advances in social neurosciences and studies of behavioral and cognitive neurobiology through functional neuroimaging studies, the aspects are always mixed and still present the integration of the significant effects of epigenetics.12 The correct application of the biopsychological criterion requires the assessment of the existence of a mental disorder, the capacity for understanding, the capacity for determination, and the causal link. [13]

In France, a survey of parliamentary debates showed that the new French law allows neuroimaging techniques in forensic examinations.[13] This examination of the legislation recently adopted in France shows that assessments of dangerousness and risk of recidivism have become central elements of criminal policy, which makes it possible, if not probable, that neuroimaging techniques will be used to assess the dangerousness of the defendant.[13]

If such neuroscientific data are interpreted as signs of a subject's potential dangerousness and not as signs of criminal responsibility, defendants may be subject to longer sentences or measures aimed at ensuring public safety to the detriment of their freedom.[14]

In the current context of heightened social need for security, the judge and the specialist psychiatrist are often called upon to assess the dangerousness of a subject, regardless of their responsibility.[14]

Influenced by this policy model, the judge may tend to use neuroscientific data introduced by a specialist as signs of dangerousness. Such uses, especially when they subordinate an individual's interests to those of society, can pose serious threats to an individual's freedom and civil liberties.[14]

At a theoretical level, the current trend in criminal justice policy to focus on predictors of dangerousness appears to be "justified" by a utilitarian approach to punishment, supposedly revealed by new neuroscientific discoveries that challenge notions of free will and responsibility.[15]

Although often promoted as progressive and humane, we believe that this approach can lead to an instrumentalization of neuroscience in the interests of public safety and give rise to interventions that may entail ethical caveats and run counter to the interests of offenders.[15]

Recognizing the interplay between mental health professionals and family courts is essential to strengthen collaboration and more positive outcomes. The rise of modern neuroscience is transforming psychiatry and other behavioral sciences. Neuroscientific advances have also had a major impact on forensic neuropsychiatric practice, resulting in the increased use of neuroscientific technologies in forensic psychiatric

cases.[16]

Our attention is drawn to the apparent similarity between these concepts and the standard established by the American and Canadian Supreme Courts for the admission of scientific evidence. The courts have held that the admissibility of scientific evidence (or the weight to be given to it once admitted) depends, at a minimum, on its scientific validity.[16]

Courts determine scientific validity by applying the criteria set forth in Daubert, which include whether the theory or technique can and has been tested, has been subject to peer review, has a known error rate or the existence of standards, and has been generally accepted within the scientific community.[17]

In a court of law, scientific validity is, of course, a necessary but not sufficient precondition in determining admissibility. Presumably, evidence-based medicine will inform the court as to scientific validity.[18]

The court typically hears from an expert who, once scientific validity is established, relies on scientifically valid evidence to form an opinion and then determines whether the expert's evidence is relevant and necessary (the trier of fact could not have determined the issue without the assistance of the evidence), despite its relevance.[18]

Evidence is not merely statistical proof of the hypothesis. Thus, scientific validity, relevance, and necessity will be considered in determining admissibility.18 Furthermore, authors such as Levine and Fink point out that in psychiatry, a variety of inaccuracies and complexities challenge the viability of the principles of evidence-based medicine to such an extent that it is impractical.[19]

Competence to stand trial is a legal construct used to identify criminal defendants who have the necessary mental capacity to understand the nature and purpose of the proceedings against them and to participate rationally in the preparation of their defense.[20]

In contemporary civilized legal systems, sanity is a prerequisite for the criminal responsibility of the perpetrator. Thus, insanity resulting from certain psychiatric and psychological disorders is a circumstance that may exclude guilt.[21]

The general assumptions of the criteria for insanity are close and similar in the legal systems of most countries; however, certain key differences appear in the details of their interpretation and acceptance.[21]

The key concepts that differentiate the forensic evaluation of children and adolescents from a clinical evaluation are the ethical issues unique to forensic evaluation, in which the duty of the forensic physician is to the person, court, or agency requesting the evaluation rather than to the patient.[22]

However, the current literature demonstrates significant discrepancies among these experts in their interpretation of the etiology of injury or mental state.[23] When dissecting and comparing final legal decisions, one study highlighted discrepancies between the opinions of these experts and their potential impact on trial outcomes, as it

demonstrated a notable discrepancy between the views of forensic medical examiners and clinical physicians, with divergences in technical judgments that medical examiners contradicted the opinions of clinical physicians and court appointees.[24]

Tang CM et al. conducted a comparative analysis of expert decisions, revealing variations in assessments and opinions among experts. Of the 27 guilty judgments, clinical doctors reported 18 cases of child abuse (67%), while their opinions were not mentioned for the remaining 9 (33%).[24]

In the case of court-appointed doctors, they considered 13 of the 27 guilty judgments as cases of child abuse (48%), while their opinions were absent for the other 14 (52%). Regarding the cases with a not guilty judgment, the court-appointed doctors perceived them as cases of child abuse (100%).24 Finally, medical examiners confirmed 15 of the guilty judgments as guilty (56%), while one guilty judgment was reversed to 'not guilty' (4%), and 11 judgments were not evaluated by them (41%). [24]

Among the three cases with a not guilty verdict, the forensic medical experts considered one as not guilty (33%), while their opinions were not mentioned in the other two cases (67%).[25]

Su HC et al. addressed family cases in Taiwan and identified key features of child abuse, including the predominant role of biological parents as perpetrators, through hostile behavior and physical abuse, as a form of maltreatment, and the victims were predominantly between the ages of 1 and 5, a neurodevelopmental period that carries a poor prognosis.[25]

In the context of family law, the role of a clinical physician involves using available medical evidence to establish a cause-and-effect link over a period of time, and forensic neuroscience and developmental neurobiology.

An Australian qualitative study, which interviewed clients, lawyers, coroners, and judges, identified through reports some problems that worsen the situation of traumatic stress in families and in the process itself. [30]

4.2 Neurodysfunctional divorce

The affective intelligence of parents is one of the main factors responsible for the development of individuals in all family units, as resources and characteristics will be factors of strong influence on the developments in the personality of the child and the family itself. [31]

The development of a real and effective support structure and a dynamic of welcoming and neurostimulation of affective intelligence through the acquisition of peripheral dopaminergic and oxytocin neurons, and avoiding various maladaptive mechanisms, such as family schemes. [32]

It is imperative that the family context be evaluated in the sense of neurofunction, currently used by family psychodynamics, because in addition to teaching ethics and morals in the education of children, as the child's brain stores, the affective interpersonal relationship between parents, who may be functioning in states of family schemes, and often do not notice that they produce acts contrary to

what is taught or affirmed by the parents.[32]

Thus, professional attention is essential to guarantee a healthy development, impacting everything from the well-being of the individual to even social harmony. [22] Although every divorce is felt by the child, and causes a cerebral impression on the typical child. [2] [2]

Studies on the impact of family breakdown have assumed divorce as a stressful event that involves mediating and moderating factors, which contribute to the variability of adaptive and maladaptive responses.[32.]

Divorces that unfold indecently should always be evaluated for the presence of pathological influences so that the child is not determined by a non-medical profession with incompetence and negligence. [22]

Thus, legal professionals should not perform professional acts that worsen and/or perpetuate a pathological family condition and especially the neurofunctional and neuropsychological destiny of the child. Neurodysfunctional divorce (NDD) should be evaluated by a doctor, since it is a pathological diagnosis that requires professional responsibility and a psychosocial evaluation technique with the implementation of the biological factor, being a biopsychosocial evaluation in fact.

After examining the couple's previous clinical data, we evaluate the parents individually, always assessing the quality of the interpersonal relationships produced throughout the relationship, to prevent punitive and aversive acts.[34]

The DND is associated with typical dysfunctional parenting conflicts, subclinical dysfunctional interpersonal and marital relationships, psychopathy and sociopathy in the family context, and personality disorders in spouses, identified by anamnesis.[35]

In the structure of this pathological context, the family environment in the post-divorce context requires organized professional support, with goals and objectives to be achieved. [35]

In children, it is essential to avoid neurofunctional shock by identifying worsening chronic hypodopaminergic states, risk factors, signs, and symptoms of Parental Alienation Syndrome, PTSD, NPS, and Depression. [35]

Psychological and social protection and support by specialized professionals constitute the social resources available to the child, which, associated with their personal resources, will determine the process of coping with parental divorce.[36] Punitive behavior is negligent, as it indirectly and directly affects the child's life, as it can generate financial unpredictability, which, according to the meaning that the child gives to the smaller amount of financial resources, impacts their quality of life and subjective well-being, as there is a decrease in their investment.[37]

Marriage and stable union contracts presuppose a commitment to fidelity and trust, not only in affective and sexual relationships but also in commitments to fundamental emotional and financial survival and material interests. [37] The impact that

the breach of these contracts causes in relationships often results in the separation of the couple, but it is complicated by multiple types of violence. [37] Until recently, unfaithful behavior was interpreted from a moral perspective. As a result of a new perspective on the subject, a redirection in the therapeutic process has been observed.[38]

The current focus is on seeking a better understanding of both individual functioning and the couple's interaction pattern, in addition to the factors involved in unfaithful behavior.[38]

Thus, the aim is to help partners identify the changes they consider necessary to remain together, if they so wish.[39]

Couples subject to such a situation have increasingly sought therapy, with the desire to assess the possibility of rebuilding the relationship.[40]

In this sense, clinical experience has shown that, after a variable period of instability and suffering, positive changes in the quality of the relationship may occur.[40] However, this does not always occur, since it involves a set of factors, including a better understanding of the motivation that led to the unfaithful behavior and the aspects associated with it; the ability of each spouse to tolerate frustration; as well as the sincere desire of each person to try to give the relationship another chance. [40]

Marital infidelity is multidimensional and has diverse motivations in its origin and is not limited to sexual dissatisfaction in the relationship. [40] Infidelity may be associated with both sexual and emotional involvement with someone other than the spouse, the occurrence of which is not known to the spouse nor has the consent of the spouse.[40]

Understanding infidelity requires a systemic view from the professional in order to be able to contemplate relational factors, individual factors, and situational factors. [41] According to Sager, the pattern of interaction tends to be consolidated from the beginning of the relationship, giving rise to mutual expectations and rules that guide, consciously or unconsciously, explicitly or implicitly, the couple's interactions.[42.]

The couple's ability to establish intimacy and closeness, both emotional and sexual, as well as conflict resolution strategies, are part of these patterns. [42]

Lack of intimacy and emotional distance may be present from the initial contract or develop over the years, creating relational blindness regarding mutual feelings and needs. [42]

Regarding conflicts, both the attempt to avoid them and the excessive frequency of their occurrence can constitute risk factors for the relationship.

According to Andolfi, the constant attempt to avoid conflicts and the failure to express needs introduce an apparent peace, which prevents spouses from knowing about their partner's dissatisfaction, creating distance.The couple's ability to establish intimacy and closeness, both emotional and sexual, as well as conflict resolution strategies, are part of these patterns. [42]

Research conducted at the

Gottman Laboratory concludes that it is not the presence or absence of conflicts that defines the relationship as satisfactory or not, but rather the fact that both feel satisfied, both with the way in which conflicts are being handled and with the agreements being negotiated.[42]

Four behaviors that lead to relational dissatisfaction and represent danger signs in any relationship, due to the negative escalation they provoke. They are criticism, which includes insults or attacks on the partner's character; contempt, expressing discontent with derogatory comments, disrespect, and disdain; removing responsibility from oneself and leading to counterattacks with accusations against the partner; and, finally, obstruction, which is expressed in the withdrawal of interest in the interaction, ignoring the partner, and avoiding visual or verbal contact. [44]

Couples with high levels of satisfaction more frequently present three conflict styles: validators, who talk about problems, acknowledging the other person's feelings and agreeing to establish agreements, and volatile couples, who tend to enter into more explosive conflicts, with both partners getting involved in the discussions. [44]

These couples express both negative and positive comments and are able to express affection at other times, thus easing moments of exacerbated conflict. [44] The third style of managing conflict, as described by the team, is characteristic of those who tend to avoid. What is observed is that disagreements tend to be minimized, with the positive aspects of the relationship being emphasized, and conflict is avoided. [44]

Such characteristics, associated with the avoidant style, are surprising, as they contradict what professionals in the field have observed until now, since, in this case, although, apparently, according to Fishbaner, adult love implies an oscillation between connection, disconnection, and reconnection. [44]

The author emphasizes that even couples who are satisfied with their relationship have conflicts, and that their ability to fix a conflict situation is essential for establishing positive relationships; that is, the couple's ability to repair the relationship and reconnect after the conflict is what characterizes a relationship as satisfactory or not. [44]

The relational factors that cause infidelity are therefore varied: an unsatisfactory or absent sex life; a chronic imbalance of power and a feeling of neediness and loneliness; a strong personal belief against the dissolution of the marriage; and extramarital relationships as a factor in stabilizing an unsatisfactory relationship.[44]

Likewise, infidelity can represent a way of preparing to leave a relationship that is no longer desired; the personal inability to take this step alone may lead the dissatisfied individual to get involved with a third person. [44]

According to Blow & Hartnett, the relationship between marital dissatisfaction and infidelity does not mean that infidelity is necessarily associated with bad relationships. According to Costa & Cenci, the inability of spouses to manage their problems, over time, increases and increasingly wears down the relationship, generating

dissatisfaction. [45]

According to Afonso, there is an association between the level of satisfaction, the level of commitment to the relationship and fidelity, since the commitment of spouses to the relationship is considered an important predictor of marital fidelity. [45] Commitment is related to the satisfaction felt in the relationship, to the perception of available alternatives. [45]

Commitment is related to the satisfaction felt in the relationship and the perception of available alternatives. [45]

The feeling of loss aroused by the possibility of ending the relationship demonstrates the existence of a strong psychological bond and motivation to continue the relationship. [45]

Atkins et al. identified that, in the presence of infidelity, there is a greater chance of instability, dishonesty, jealousy, and discussions about trust, narcissism, and time apart between spouses. [45]

According to Sattler et al., the feeling of satisfaction in the marital relationship results from the complex interaction of factors of individual intrapsychic functioning, individual expectations and needs, individual values and beliefs, the couple's sex life, balance of power, and appreciation of the couple's ability to jointly resolve problems. [45] Transgenerationality is one of the fundamental aspects for a better understanding of infidelity behavior. [45]

The way a person sees the world and themselves, as well as what they consider important and what they classify as right or wrong, originates and is transmitted by the family, implicitly or explicitly.[45]

In the clinical context, people involved in situations of infidelity often report having experienced a similar story in their family of origin.[35]

Even when observing the repercussions of this action in the lives of family members, the possibility of behavior would be an admissible option as a form of fidelity to family behaviors in the process of transgenerational behavioral transmission. [45] Human beings have always been guided towards seeking their survival. The amygdala, an area located in the limbic system, also responsible for emotional memories, especially those related to fear, is always on alert to identify danger.46 Infidelity is one of the events identified by the amygdala as a situation of intense danger that adds to other records of danger already present, based on experiences and bonds lived since childhood. [46]

The network of neural connections, formed from personal experiences since childhood, is reinforced and becomes ingrained when it is constantly activated. This neural network is the basis of our habits, thoughts, feelings, and behaviors, which directly influence adult romantic relationships. [46]

According to Fishbane, understanding that new neural networks can be created contributes to the patient's motivation and supports change, and as part of the therapeutic process, the couple should be informed about issues related to the plasticity of

the brain, as well as about how neural pathways are activated in the face of a situation of criticism and blame by the loved one, which leads to a feeling of threat. [46] The clarification that, in a situation of this nature, the individual feels as if he or she is being attacked, which may result in a fight reaction, generating open conflict and counterattack behavior, or a flight reaction, resulting in withdrawal behavior and apparent disinterest. In such situations, each person feels that they are the victim of the other, and there is a circular tendency for both parties to increase their behavior. [46] Because of this, it would be important for each person to learn to identify their automatic reactions, as well as to recognize the incorrectness of the interpretations made regarding the behavior and intentions of the other, since such interpretations are normally colored by their respective personal histories, and thus separate the past from the present. [46]

The individual's commitment to change, combined with effort and conscious, intentional repetition with an objective to be achieved, can lead to the development of a new network of connections between neurons. [46]

This new network, with the help of the prefrontal cortex, will allow the individual to learn to control their reactions to the feelings aroused by the behavior of the other. It is not enough, however, to suppress them; it is essential that each individual learn to identify, name, and adequately express their emotions and needs. [46]

Behavioral and cognitive therapy for family schemasYoung's behavioral and cognitive therapy of family schemas is a fundamental tool for resolving such conflicts, but both partners must be motivated. [46]

This learning makes it possible to increase communication between the limbic system and the prefrontal cortex, contributing to a faster reaction of the cortex, reducing limbic influence through thought. [46]

However, this warns that survival strategies do not disappear completely. Even after having worked on personal and relationship transformation, couples will eventually be confronted with childhood memories and records. [47]

In critical moments and under more intense stimuli, previously developed behavior may be reactivated. [47]

The new neural connections, developed by the individual's repeated and conscious effort, remain available for activation as soon as the cortex is no longer inhibited. [47]

In such circumstances, reducing the level of reactivity of the amygdala will allow the individual to reconnect with themselves and their partner. This process of reactivation of the amygdala, in moments of emotional overload, is present, and with even greater intensity, in people facing a situation of infidelity. [47]

It is worth noting that such memories tend to trigger flashbacks, due to the amygdala signaling danger, and such responses, in emotional terms, are as intense as those provoked at the time of knowledge of infidelity. [47] The reestablishment of trust and security

contributes to the reduction of the frequency and intensity of these flashbacks. [47]

4.3 Parental Alienation

The phenomenon of induced parental alienation (PA) has been described in the psychiatric literature for at least 60 years, and received the title of professional classification in the 1980s and 1990s. [48]

In 1985, psychiatrist Richard Gardner described Parental Alienation Syndrome (PAS) as a disorder in which children are programmed by one parent to repeatedly defame the other parent. "[48]

Other terms are found in the literature: "pathological orientation," "pathological alignment," "programmed children," "alienated children," "pathological alienation," "brainwashed children," and "refusal of visitation.".[48]

In the medical concept, a syndrome is a set of associated signs and symptoms that characterize specific dysfunctions but of unknown origin. [48]

Previous dysfunctional parenting is a clear risk factor for the occurrence of behavioral deviations in the family environment, as it presents a neurobiological background of important motivated behavior of an emotional and affective nature. [49]

For neuroscientists, the function of the family is an important and critical factor for analysis, as environmental events regulate the neural systems that mediate the expression of parental care.[49]

Untreated induced PA can lead to long-term traumatic psychological and physical effects on the children in question. This fact still does not receive sufficient attention in family court cases and in medicine itself. [50]

In this context, induced PA is a serious form of childhood psychological suffering, psychological abuse, which is associated with long-term neuropsychological consequences and sequelae and determines the child's personality that persists until adulthood. [50]

In such circumstances, a strong alliance may be established between the custodial parent and the alienated child, as it is a neurodysfunctional behavior that relieves the parent, which may have other underlying functions, such as punishment, which contributes to the rejection of the other spouse, such as refusing their visits. [50] The neuroalienated child is conditioned to maintain the spouse's alienation and ends up identifying with the pathological parent, accepting as true everything that is told to him/her. [51]

There are situations in which PA does not begin with the parents; it is a structure that can come from generations. The same speech of the mother or father, in the grandparents, which reinforces the PA, may be a support for a desire of possession of these grandparents to be fulfilled over the grandchildren. [51]

According to technical information taken from the website of the Public Prosecutor's Office of Paraná (MPPR), published in 2016, the legislation highlights some examples of alienation:

" The first of these is the most common and most used: disqualifying the parent's conduct. These are phrases such as "Your

father was late paying for school" or "I called you yesterday and your mother wouldn't let me talk to you," and also "Your father doesn't like you" or "Your mother doesn't care about you," which, repeated over and over again, end up being internalized by the child. [51]

Making it difficult to exercise parental authority, the child's contact with the parent or the exercise of the right to family life are also forms used. They occur, for example, when one of the parents does not pass on to the child the message left by the other, when emails and phone calls are intercepted, when gifts left for the child are not delivered, when obstacles are created for visitation, when the father or mother forbids the child from using an item of clothing or an object given by the other parent, among other situations. [52]

Parents who withhold important information about the child or adolescent from their ex-partner, including school or medical information. For example, the mother does not tell the child that there will be a Father's Day party at school, and when the father does not show up, she says that he does not care about the child; or the father does not tell that his child had a minor accident and went to the hospital, and when the child questions the mother's absence, he says that she does not care about the child. [52]

Another form of parental alienation mentioned is the unjustified change of residence to a distant location, with the aim of making it difficult for the child to live with the other parent and their family members, such as grandparents.[52] The most serious situations, also described in current legislation, involve the presentation of false complaints against the parent, whether of violence, neglect, or sexual abuse, which can result in the child being suspended from living with the father or mother. "It is psychological violence, immense psychological violence." When there is a serious complaint, removing the child is the first step and is justified by protection, which must come first. But we would first have to have a diagnosis: From whom are we going to protect?", asks pediatrician and child and adolescent psychoanalyst Luci Yara Pfeiffer. " (https://mppr.mp.br/Noticia/Causadora-de-graves-prejuizos-aos-filhos-alienacao-parental-e-punivel-pela-legislacao)

Physician Luci Yara Pfeiffer uses true clinical reasoning, which is fundamental in the medical profession, when declaring the need for diagnosis to protect children. Psychiatrist Wilfrid von Bochgau, who has twenty years of experience in cases of PA and Parental Alienation Syndrome, states:

The suffering of affected children and adults, due to the complication of prolonged loss of family contact, leads to depression of the cognitive state, which can lead to secondary depressive MDs and which have an impact on occupational health.

In many cases, PA and affective parental neglect are previously active, chronically and silently, and an episode of PA occurs as an exacerbation of a previous MD, which can currently be identified through clinical neuromarkers.

However, supporters and opponents of the concept of PA, both in science and in practice, are involved in ideological debates about whether the

phenomenon of induced PA is a "syndrome" or not. Currently, there are legal professionals who take advantage of financial reasons and neglect the AP.[52]

4.4 Adverse Childhood Emotions

The term ACE refers to some of the sources of stress to which children can be exposed, including child maltreatment, interparental violence, and fighting. It is now well established that children who have experienced exposure to ACEs are at greater risk of harmful health behaviors and mental and physical illnesses, including cancer, cardiovascular, and immuno-inflammatory diseases. In addition to developing harmful health and well-being disorders, they are at greater risk of engaging in harmful behaviors such as addictions, antisocial behaviors, abusive relationships, and, especially, perpetrating the interpersonal violence they experienced in adulthood.

In fMRI studies, the main features of early brain development are neurogenesis and axonal growth before birth, as synaptic connections are rapidly established after birth with consolidation. [74-81]

Cellular loss and synaptic pruning occur, as well as an increase in white matter due to improved connectivity through myelination. Changes in synaptic connectivity and axonal myelination are among the main microscopic processes in postnatal development.[74-81]

Changes in cortical thickness and white matter volume are the traditional fMRI markers of macroscopic development. The ventromedial prefrontal cortex is involved in social reasoning and decision-making, the amygdala in social judgment of faces, the right somatosensory cortex in empathy and simulation, and the insula in autonomic response.[74-81]

The "higher order" cognitive processes that will be fundamental for successful adult independence, such as planning, problem solving, and working memory, are involved. Random assignment of individuals with different genetic polymorphisms provided evidence that genes interact with the quality of parenting to influence behavioral changes during early life. [74-81]

Parenting behaviors are directly interrelated in the longitudinal and bidirectional relationships between maternal depression and child internalizing symptoms (depression and anxiety). [74-81]

Studies of the bidirectional relationship between child and maternal internalizing psychopathology are partially explained by the greater psychological aggression of depressed mothers toward their children.[74-81].

Altered brain architecture in response to toxic stress partially explains the associations between ACEs such as the Enneagram and impulse control, emotion regulation, and other cognitive challenges.[74-81].

There is increased aberrant activity in the amygdala, especially in the centromedial nucleus and insula, during emotional processing in children and adults who were exposed to ACEs.[74-81]

Several meta-analyses have demonstrated consistent functional

changes in the amygdala, hippocampus/parahippocampal gyrus, insula, and DLPFC. [74-81] The hippocampus plays a key role in neurobiological stress systems, and several studies have shown positive associations between stress, mental illness, and hippocampal morphology.[74-81]

The reward-based learning mechanism predicts that the simultaneous activation of striatal neurons and the activity of the reward-associated dopaminergic neuron is essential for reinforcement learning. [74-81]

Furthermore, several studies show that ACEs directly affect neurological, hormonal, and immunological development. Thus, ACEs are associated with increased biomarkers of inflammation and shortened telomeres, which is consistent with direct effects on chronic diseases such as cancer, cardiovascular diseases, and respiratory diseases.[74-81]

A clinical history of childhood adversity should be considered in the differential diagnosis of developmental delay, dyslexia, dermatitis, asthma, recurrent infections, somatization, and sleep disorders, but also for psychological and behavioral functioning similar to ASD and ADHD. [74-81]

The stress system coordinates the body's responses to threats and opportunities, mobilizing physiological and psychological systems to respond to fluctuating environmental conditions and maintain homeostasis.[74-81]

Howland MA et al., demonstrated that the stress response system can be calibrated to aggressive pre- and postnatal environments and subsequently recalibrated when RINs shift to supportive (or vice versa) and highlight its potential as a multilevel and multisystem mechanism, whether positive or negative in relation to resilience. The first period of neurodevelopment (3 years) is the main moment that will define the regulation of several emotions, mainly fear, self-security, synchronicity of family relationships, emotional regulation control, and inhibitory regulation control.[74-81] In addition to the potential psychological trauma due to the circumstances of suffering a brain injury in childhood, which can significantly alter a child's developmental trajectory, particularly when it occurs during critical periods of brain development.[74-81]

The lack of affection and an insufficient bond with parents, the child's brain develops the dysfunctional maturation of the primitive emotion system SEEKING, which will condition chronic and oscillatory hypodopaminergic functioning, along with other alterations in neurodevelopment.[74-81]

Thehypodopaminergic state can be potentiated by genetic and epigenetic mechanisms that cause dysfunction of dopamine homeostasis and the Reward Deficiency Syndrome (RDS) described by Blum et al. Such states are responsible for behaviors and habits that generate dopamine (DA), the neurotransmitter of pleasure and well-being, and its basal absence causes displeasure, irritability, boredom, duality and indecision.[74-81]

Several findings and evidence of deleterious effects with lasting neuroplasticity of the HPA axis associated with child maltreatment and early-onset psychiatric disorder, in the development of different subregions of the child's hippocampus, in important periods of neuronal maturation.[74-81]

This experience-induced neuroplasticity is due to changes in the frequency and intensity of stimulation of the sensory systems (olfactory, somatosensory, and gustatory). Animal studies suggest that stress acts primarily to suppress neurogenesis of dentate gyrus granule neurons to cause remodeling of dendrites in CA3. [74-81] Teicher et al. found associations between childhood maltreatment and reduced volume of the left hippocampal CA2-CA3 and CA4 dentate gyrus (CA4-DG), as well as the left subiculum and presubiculum and right CA1, in a community sample of adults. Early- and late-onset psychopathology were associated with developmental volumes of the right presubiculum and right cornusammonis 1 (CA1) brain regions, respectively. Altered development of the right CA1 may precede the development of psychopathology in early childhood and later in adolescence.[74-81]

Deficient or ineffective maternal care programs are an abnormal response to stress, encoding long-lasting molecular changes that may extend into the next generation. Thus, brain immaturities combined with unique trauma processing may underlie the long-lasting effects of abuse that remain largely hidden in early life. [74-81]

Studies have shown that in patients with PTSD, early trauma and ongoing threat, neuroendocrine and neuroimmune dysfunctions reflect lower basal cortisol levels, increased glucocorticoid receptor (GR) function and a pre-, peri- and post-trauma pro-inflammatory response. Neurosteroid levels increase rapidly during acute stress, and in chronic stress, they significantly influence behavioral changes associated with ACEs.[74] Hypercortisonemia frequently occurs in patients with severe depression, melancholic depression, and is linked to the presence of a polymorphism in the promoter of the serotonin transporter gene in patients with a history of childhood abuse or neglect or PTSD and living with people with temperaments that generate changes in the stress response.[74-81]

How HPA dysfunction leads to the development of affective disorders is complex but may involve GABAA receptors (GABAARs), as they reduce stress-induced activation of the HPA axis.[74-81]

According to Bellis et al., a 10% reduction in the prevalence of ACEs could be equivalent to an annual saving of 3 million DALYs or US$105 billion. Rebalancing spending to ensure safe childhoods would be economically beneficial and would alleviate pressures on health systems in any country in the world.[74-81]

4.5 Post-traumatic stress disorder (PTSD)

Post-traumatic stress disorder (PTSD) is an acute psychiatric condition resulting from direct or indirect exposure shortly after exposure to severe trauma or moments that generate memories, similar in the affected mechanism to loss and bereavement.[74-81] The pathophysiological process is

neuromaladaptive and debilitating, characterized by avoidance and disturbances in emotional oscillations, mainly in relation to fear, with distortions of negative thoughts, central and peripheral neuronal hyperexcitation, in subsequent months and even years. It involves situations of intrusive re-experiences of the traumatic event in the form of unwanted memories, nightmares, flashbacks, emotional and physical suffering, after exposure to traumatic reminders, and persistent symptoms of avoidance of trauma-related stimuli.

The risk of developing PTSD due to the influence of hereditary genes is up to 40%, and the risk after severe trauma is determined by several factors, such as the presence of ACEs.[74-81]

Several studies have shown that trauma-related disorders are associated with dysfunction of several biological systems, and the severity of PTSD symptoms has a cumulative effect on premature aging of the immune system, telomere length, gene expression dysfunctions, and lasting epigenetic alterations.[74-81]

The fMRI studies have demonstrated hyperactivation of the amygdala system during learning tasks, symptoms of anxiety, fear, stress, and emotional processing among individuals with PTSD and AIS. [74-81]

In situations of threat, amygdala hyperreactivity plays a causal and/or chronic contributing factor. However, emerging literature in healthy samples shows greater test-retest reliability for amygdala habituation, the change over time in response to repeated stimuli, than for its reactivity to threat.[74-81]

ThefMRI studies have shown that in temporoparietal regions, associated with morphofunctional changes in amygdala reactivity and volumes, the occipital and frontal lobes subsequently evolve with atrophy in 30% of cases.[74-81]

It may occur that the central DMN extends to the temporal subnetwork, since studies have shown that in individuals with PTSD, activities of increased intensity and time (chronic) presented accelerated atrophy of the temporal lobe.[74-81]

They occur due to dysfunctional couplings, which can be pathological, as in cases of family alienation, post-trauma resilience, and grief, in which there is excessive amygdala coupling due to chronic reactivation of the neuronal system, or cases of slow decoupling (neuromaladjustment) of tracts and fascicles, which are related to the pain mechanism, which are evidenced in some fMRI studies. [74-81]

Typical evidence is the findings after one year of exposure to stress, in patients with post-war PTSD, who present decreased amygdala-dACC coupling. The brain regions most consistently associated with PTSD include the amygdala complexes, hippocampus, insular cortex, and areas of the dorsolateral prefrontal cortex, including the anterior cingulate, dorsal striatum, thalamus, and sensory areas.[74-81]

These brain regions work together for the initial acquisition and subsequent expression of fear memory. There are numerous studies with evidence of EAI + PTSD-related disorders and lasting effects on the structure and

function of neural stress regulatory circuits.[74-81]

A consensus among trauma researchers, clinicians, and stakeholders that trauma permanently alters the brain is also known as the neurotoxic stress theory (NST).

According to Danese et al., impairments in cognitive functions (general intelligence, executive function, processing speed, memory, perceptual reasoning, and verbal comprehension) preceded childhood victimization but were associated with ACEs.[74-81]

4.6 Neurodysfunctional Parenting

Affiliative behaviors are those that involve social bonds between individuals, including bonds between partners and parents with their offspring. From an evolutionary perspective, social bonds serve to reduce stress and anxiety by increasing security, and thus the formation of social bonds helps to maintain groups or pairs of individuals together in harmony.[74-81]

There is currently an extremely large body of research on coparenting, and researchers have presented several categorizations of the dimensions and measures of coparenting. [74-81]

These are affective contact, support/mutuality, coparenting conflict, family integrity, depreciation and reprimand, family harmony, parental discrepancy, hostility-competitiveness, child-rearing agreement, division of labor, joint support, joint family management, cooperation, and negative affect.[74-81]

According to Feldman et al., the closer the affiliative bond, the faster it can turn into hate, suggesting similarities in the neurobiological foundations of love and hate. Feldman et al. demonstrated the correlation of the neurobiology of hate in a set of dysfunctions that represent the "affiliative brain," comprising the neural network that supports attachment, the dysfunction of the oxytocin system, and the biobehavior of family synchrony, which are the processes by which human beings create a coupled biology of coordinated action. [74-81]

Feldman's group applied an intervention based on interpersonal synchrony to young Israelis and Palestinians, and after the end of the sessions, they identified an increase in reciprocity, with a reduction in hostile behavior towards the outgroup, attenuation of the neural marker of prejudice, an increase in the neural empathic response, a reduction in cortisol, and an increase in oxytocin with greater attitudes of commitment. [74-81]

Furthermore, these neural changes predicted support for peacebuilding seven years later, when the young adults engaged in civic responsibilities. [74-81]

4.7 Fundamental Justification for Medical Evaluation

The child is the core interest of the Justice in cases of PA, and thus, its emotional, intellectual, physical, and social development must be preserved in the first instance. [74-81]

The relationship between early life events and health in adulthood is mediated by influences of parental interpersonal relationships, in the

neurodevelopment of systems that underlie the expression of behavioral, endocrine, immunological and metabolic responses to childhood stress.

Several studies with significant evidence demonstrate that the quality of the parents' interpersonal relationships influences neurodevelopment, which presents specific patterns, and determines the health and productivity of the individual throughout his or her useful life. [74-81]

According to Gunnar, Herrera, Hostinar, Bair-Merritt et al., unstable environments of psychological tension, which are characterized by strong parental conflict and high levels of stress, result in maladaptive responses in children with disorders in neuronal biochemistry, which produce states of hormonal and emotional imbalance and chronic states of alert, which are harmful to the health and well-being of children at the time and later. [74-81]

Through activation of the hypothalamic-pituitary-adrenal (HPA) and corticotropin-releasing hormone (CRH) pathways, prolonged or exaggerated responses to stress have profound effects on physiological and cognitive functions. Several studies with children who presented symptoms of stress have shown a higher frequency of negative perception of life events, more episodes of dysfunctional fear, and ineffective maladaptive coping, such as avoidance. [74-81]

Many events significantly influence the lives of post-separation children, which, combined with the stressful events of divorce, end up generating emotional distress and negative effects that are cumulative and harm the child's health.

The functional effect of affection and deep attention on family relationships, observed in the psychodynamic functions of the roles of the family system, presents inheritances of a neurological basis through the amygdala, oxytocin, and mirror neuron systems. [74-81]

Through these various adaptive neural mechanisms, the environmental demands of the mother reflect on the functional quality of maternal care for the children. However, it not only determines certain health developments but also establishes interpersonal relationships in the next generation. [74-81]

This intergenerational transmission of maternal behavior has been identified in rodents, primates, and humans and may underlie adaptive changes in the HPA axis. A study of relationships with parents considered cold and distant showed a four-fold increased risk of developing chronic diseases, including depression and alcoholism, as well as heart disease and diabetes. [74-81]

According to McIloyd and Conger et al., parental factors serve to assess the effects of environmental adversity on emotional and cognitive neurodevelopment since they are initially mediated by parental factors, and if such factors are controlled, there is no discernible effect of poverty on child development. [74-81]

Aydin et al. showed that the quality of relationships between parents and children is positively correlated with parental acceptance/involvement with self-esteem, hope, and academic

performance of young university students. [74-81] Several pieces of evidence demonstrate that individuals who are securely attached have low emotional and positive reactivity, greater affective involvement, acceptance, security, and a higher level of hope. Hopeful individuals are more competent to achieve their goals and are more confident when dealing with challenges and difficulties. [74-81]

Deficits in hope, self-security, and emotional dysregulation, particularly fear and insecurity, have distinct biological and psychosocial components, both objective and subjective.

The identification of psychological components, such as limiting beliefs that are causes of chronic psychological distress, may originate and be maintained by parental teaching, in addition to being enhanced by positive reinforcement of the presence of judgments, toxic parental behaviors, and subclinical parental neglect (SPN).

Limiting or distorted beliefs may have a neurological origin, such as an active family schema. Some studies suggest that neglect results from damage to regions involved in attention control and a lack of brain processing, similar to other neglect pathologies of neurological origin. [74-81]

Recent studies have shown the correlation of symptoms of affective neglect with amygdala hyperactivity, with the presence of dysfunctions of neuronal hyperconnectivity of the gray matter in the superior longitudinal fasciculus, cortical, and subcortical regions of the cerebral cortex. [74-81]

These neurodysfunctional situations that present a neurological function of emotional survival in the family environment, such as a state of active Family Schema (in pairs), generate relief in the emotional state (positive or neutral) and discomfort or mental suffering in the other (negative), in a hidden or unconscious way. [74-81]

In the family member who reacted with a negative state, situations occur for a choice of several options of reward behaviors with a relieving function, which are producers of dopamine. [74-81]

Each choice is associated with distinct probabilities of reward omission, which are individual ways and opportunities for demand to perform emotional regulation, in addition to dopaminergic pleasure.v

A family pattern or stressful situations are situations of mental exhaustion and/or suffering, and thus the amygdala neurological system automatically responds to their avoidance, as it is its elementary function of emotional survival. [74-81]

The unexpected omission of reward after the selection of the great 'risky' option normally decreases the probability of this action being performed in subsequent tests while increasing the exploration of other opportunities to obtain reinforcement. [74-81] Such incitement may arise from numerous factors linked to the subjectivism of the interested party, but, in any case, it attacks the dignity of the child, who finds himself deprived of the moral assistance that is due to him as a result of the system. [74-81] Furthermore, successful

treatment results associated with early intervention programs are routinely correlated with changes in parental behavior, and, conversely, in cases where parental behavior presents resistance to change, treatment results are seriously limited. [74-81]

The family environment, characterized by denial, violations of limits, distortions of reality, paranoia, narcissism, and dramatic attitudes, in the psychological and analytical concept, has the function of maintaining the family structure. [74-81]

Several neurobiological studies show that parental emotional neglect causes a risk of developing depression in 60% of cases and chemical dependency in 80% of children. [74-81]

According to Feldman and Phua et al., a shift in focus from negative aspects of maternal mental health, such as symptoms of depression, anxiety, distress and neuromaladaptive behaviors, signals a growing awareness of the vital need to shift research resources towards preventive approaches, focusing on parental relationships. [74-81]

4.7.1 Neuromaladaptive Cognitive and Behavioral State

Information processing capacity is characterized by topochronic network organization, as defined by the strength of the connectome and delays in signal transmission, restricting the emergence of brain functions and the formation of maladaptive networks. [74-81]

Large-scale corticothalamic networks and the complexity of their dynamics play an important role in levels of consciousness and their quantification, critical for both basic mechanistic understanding and clinical application, such as in disorders of consciousness. [74-81]

Emotional stimuli are processed by frontal brain structures targeted by both the ventral and dorsal processing streams, but other brain structures that do not belong exclusively to either processing stream also contribute to perceptual decisions about emotions. [74-81]

One such structure is the amygdala, which works concurrently with sensory and higher-order cortices to tag incoming sensory information with contextual relevance and subsequently detect this relevance upon the next encounter with that stimulus. [74-81]

The pre-cueing mechanism sets the values of some parameters of the transformation rules in feedforward processing and thus defines the parameters that highlight some information in the visual scene, increasing the activation of neurons that encode this information, functioning as true selection filters. In cases of dysfunctional parenting, this is the main altered cognitive mechanism. [74-81]

We describe a personality microstructure that develops in the early childhood window phase, in response to the quality and quantity of family interactions, and thus produces in response a neurological conditioning of typical and neurodysfunctionalbiobehaviors and biocognitions, related to emotional and affective function. [74-81] A set of eight common neurodysfunctions (CNDs) is responsible for the neurobiological origin of dysfunctional

coparenting and most personality disorders (PD), and the following are their clinical and neurobiological elements: CNDs is a neuromaladaptive clinical connectomics delimited by biobehaviors dependent on family interactions: (1) family synchrony deficit, (2) schematic behaviors, (3) neuromirroring, (4) dysfunctional neuropsychodynamics, (5) dopamine and reward system dysfunctions, (6) emotional dysregulation, (7) inhibitory control deficits, (8) social and family skills deficit.[74-81]

They present influences with disorders of genetic components (epigenetics, gene expression, polymorphisms, absence or presence of variant genes) and hormonal dysfunctions (cortisol, oxytocin, vasopressin, and melatonin dysfunctions) and immunoinflammatory. [74-81]

1) Deficit/absence of peripheral oxytocin and dopamine neurons that are responsible for synchrony, depth attention, and family social skills.

2) Positive feedback dysfunction of the primitive emotional system of the dopaminergic SEEKING system. It develops in the presence of childhood adversity and expresses chronic and oscillatory hypodopaminergic states.

3) Reward system dysfunction (RDS)

4) Navigation mode in the family environment, with predominance of activity in the hippocampus and amygdala system, due to the formation of engrams of increased interneuronal connectivity strength of these systems of the amygdala and limbic systems with predominance of their activity with the hippocampus, forming an exclusive navigation mode in the family environment. Chronic aberrant and sudden amygdala inputs occur, generating maladaptive states expressed as family schemas (Young) that produce neurodysfunctional interpersonal relationships (NIRs) such as misconduct, neglect, and psychological abuse among family members. The navigation mode with predominance of amygdala systems and automatic behaviors generates neurocognitive states with Alexithymia: the inability to effectively self-observe (self-identify) emotional and affective awareness at the same time, and Secondary Anosognosia: the inability to effectively identify the emotional and affective state of another person. 5) Commissurectomy: Interhemispheric disconnection of the ungual and arcuate fascicles, secondary to toxic behaviors of parents, mainly verbalizing, which causes secondary simultanagnosia (inability to identify more than 2 objects at the same time), causes cognitive inflexibility, decreased processing speed, and limits the extent of consciousness with dense intelligence.

6) Neuromirroring dysfunction of mirror neuron networks: Occurs through the inversion or increase or decrease of the functional roles of the family system. The inversion of a mode has an important cumulative effect on the SEEKING system and the RDS. Replication of the experienced effect occurs, in an increased, decreased or inverted form of these functional modes of neuropsychodynamics, and involves the entire circuitry of attachment with neuromirroring.

7) Neurological and enzymatic deficit of emotional regulation: chronic and acute stress, behavioral deviation.

8)

Neuroenzymatic deficit of inhibitory control: impulsivity, behavioral deviation.

9) Neurological deficit of social skills (extradomiciliary): social isolation, preferences for habits without social contact, introversion, shyness.

10) Neuronal deficit of family skills: absence of mentalism and parental incapacity. 11) Underdevelopment of the PFC: The PFC is 'hijacked' by the subcortical structures of the midbrain. It occurs due to a deficit in myelination secondary to stress. Myelination, which is involved in regulating processing speed, especially in pre-development periods.[74-81]

1) *Secondary Simultanagnosia:* Inability to effectively identify more than four objects at the same time.

2) *Secondary Alexithymia:* Inability to effectively self-observe (self-identify) emotional and affective awareness at the same time.

3) *Secondary Anosognosia:* Inability to effectively identify the emotional and affective state of another person.

4) *Anosodiaphoria*: Inability to identify one's own health condition, associated with denial of one's state. [74-81]

Alteraçõesgenéticasenvolvidas:

1-(rs2254298, rs1042778) = reciprocity in social bonding (synchrony)

2- oxytocin receptor polymorphism rs53576 = decreases anxiety and fear regulation

3-OXT receptor gene (OXTR) or CD38 (cluster of differentiation 38), a gene involved in OXT release

4-methylation in serotonin transporter genes (SLC6A4) = depression and anxiety

5-brain-derived neurotrophic factor (BDNF) = depression and anxiety

6-glucocorticoid receptor (NR3C1) = depression and anxiety

7-FK506 binding protein (FKBP5) = depression and anxiety

8-DNA Binding Protein Inhibitor ID-3 (ID3) = adverse events and depression 9-Tubulin Polymerization Promoting Protein (TPPP) = adverse events and depression

10- Glutamate Receptor, Ionotropic N-methyl- D-aspartate (NMDA) 1 (GRIN1) = adverse events and depression.

11- high-risk FKBP5 polymorphisms = stress and childhood abuse 12- increased methylation (NR3C1) : suicide with history of child abuse - low-risk CD38 alleles = increased parental care - OXT rs2740210 and rs4813627 = many sensitive to ACEs. - OXTR gene polymorphism rs53576 = emotional dysregulation, problematic attachment, PTSD symptoms, depression symptoms, lower levels of perceived social support, and internalizing behavioral problems.

13- COMT-Val/Met = hypodopaminergic trait and disorganization attachment style

14- DRD2 TaqA1 and DAT1 alleles 10 = avoidant attachment 15- DRD2 A1 allele = controlled eating if parents control themselves emotionally

16- dopamine receptor D2 gene (DRD2) = novelty seeking (emotions)

17- any A1 allele of the DRD2 gene = novelty seeking, if punished

18- GABRA6 (Pro385Ser) = Mentalism and paternal rejection

19- the short alleles (two or five repeats) of the DRD4 gene = novelty seeking 20-TaqA1 = brain preference for known or experienced attachment 21- DNA methylation in the OPRM1 gene = , stress regulation, motivation, and potentially all subtypes of RDS.

22-MAOA-H allele (high activity) = high risk of committing serious, recidivist, impulsive and violent crimes and physical abuse in childhood 23- haplotypes rs1360780, rs9296158, rs3800373 and rs9470080 =PTSD with history of rape, sexual violence

24- polymorphism of the brain BDNF gene Val66Met (rs6265) = attention deficit, depression associated with child abuse

25- nuclear receptors NR4A: Nur77 (NR4A1), Nurr1 (NR4A2) and Nor1 (NR4A3) = dysregulation of the stress response

26- polymorphisms in OXTR and AVPR1A = individual variation in social behavior and cognition

27- SNP OXT rs139832701 and rs11131147 = depression and anxiety related to parental care in childhood

28- GRIN2B = childhood adversity and depression

29-Deletion CD38= social amnesia

4.7.2 Neuro-Biopsychosocial Assessment

The updated assessment of biopsychosocial components presents a standardized and systematic methodology, divided into two phases. It was constructed in a descriptive manner, establishing the causal and pathophysiological link to the data from clinical neuromarkers, corresponding to parental affective insufficiency. [74-81]

Without compromising the individualized understanding of each family in their own context, the assessment presented is divided into two phases. Initially, it is objective, and later, it is subjective. [74-81]

Given the complexity of the family context, it is important to emphasize that the evaluator's attention should not be focused solely on individual characteristics, but also on the interpersonal relationships between the parents, the child, and their social context. [74-81]

In cases of AP, the alienating spouse may commit acts of recklessness against the other spouse, making serious and illicit accusations to the courts, which should be assessed by the presence of states of behavior motivated by emotion in a neurodysfunctional manner, or an underlying personality disorder. [74-81]

Currently, the term mentalism, which is the ability of an individual to identify and evaluate the real state of another individual, has been used by current behavioral neuroscientists. [74-81]

Ineffective mentalism is equivalent to parental capacity in the family environment.[74-81]

The acronym ANAAS helps in organizing the technical evaluation of clinical neuromarkers to the neurobehavioral and cognitive state, as it identifies the neurodysfunctionalbiobehaviors: Family

Asynchrony, Amygdala Neuromaladjustment (Family Schemas), Alexithymia, Anosognosia, and Simultaneously. [74-81] They are also associated with the presence of anasodiaphoria, hidden RINs such as child and family coping, with previous production of psychological microviolence (hidden) and deterministic invasion of choice, which is preferential to the alienating spouse.[74-81]

To conclude the first phase of neuroreductionist evaluation, we check the quality of parental capacity, which is equivalent to the individual capacity for mentalism, which is scarce or ineffective. [74-81]

Chronichypodopaminergic state in children is another objective clinical sign that develops in the absence of effective parental attention or affective neuroneglect, which are biobehaviors such as family synchrony. [74-81] It is of fundamental importance to emphasize that this first phase of evaluation is objective and neuroreductionist and does not evaluate the individual character of the parents, since clinical neuromarkers are common and dependent on neurobiological components, which justify a portion, but NEVER all, of the responsibility for guilt. [74-81]

Subjectivity and personal character are evaluated in the second phase, when evaluating family members individually, without using neuroreductionism, but establishing the causal link between the neurological components that are hidden or not self-identified and the psychological and subjective components, which can be partially self-identified or fully identified. [74-81]

Currently, forensic psychological assessment in the context of custody disputes occurs through a procedural request, aimed at clarifying issues contained in the case records, and is directly related to the judge's judgment.[74-81]

It is necessary for the professional to be prepared not only to understand and evaluate the dynamics of the former couple but also to ascertain the child's development and identify the true bond with the parents. [74-81]

Observing the behaviors of all family members involved in a family breakdown process helps clinically and objectively to detect the occurrence of PA. Many cases of PA are hidden from the family courts. [74-81]

If there is a suspicion of alienation, abuse, or violence, or a complaint from a spouse, an evaluation of all those involved must be carried out. The importance of listening to children at different times during the process, in the presence and absence of the spouses separately, helps to identify neuroalienating states. [74-81]

Children should always be assessed, but not to verbalize who they prefer to spend time with. Currently, one of the biggest professional mistakes made is to apply ready-made questionnaires to children without examining their body reactions and ready-made speech. Identifying family patterns, motivation, interest, and values of the child are fundamental to an objective diagnosis since the amygdala system always responds immediately without the necessary reflection and assessment.

Assessment of adverse childhood emotions and PTSD (Krauser Questionnaire)

Greater exposure to adverse childhood effects or mild aggravating events (≥4 ACEs) has a "dose-response" relationship and increases the risk of developing chronic diseases by around two times or more, as does the presence of PTSD.

Assessment of Emotional Intelligence/Mentalism Inference

- *Assess the presence of Alexithymia;*

After explaining the concept of an emotion, ask what emotion the individual is feeling at that moment (precise identification). If the immediate response involves rationalization or prediction, a state of alexithymia is configured. After several attempts after training, and if the individual does not present technical success, we can consider significant alexithymia.

- *AssessmentofAnosognosia:*

Ask the individual to try to identify or perceive his/her emotion without predicting. Assess whether he/she effectively observes with identification of the emotional state (Mentalism). Check for automatic routine habits, which are believed by the individual to be *involved in subclinical affective parental neglect*. .

- *AssessmentofAmygdalaNeuroschemas*

Ask questions about their family members and observe if there are sudden cognitive and behavioral changes, which are negative in nature or with speech incongruent with the *behavior and reality produced*.

- *AssessmentofAnasodiaphoria*

After the entire assessment, seek guidance with psychoeducation and identify whether the individual has the capacity to accept his/her condition. Usually presents denial, avoidance, escape, aversion, and even punishment. The presence of this clinical neuromarker indicates marked neuromaladaptive activity.

Alienating Spouse:

• Presence of dissocial personality disorder, sociopathy, or psychopathy;

• Presence of dysfunctional survival personality (NCPs);

• Presence of Anosodysphoria and Alexithymia to assess Parental Alienation due to dysfunctional neurobehavior of denial, aversion, avoidance, and escape;

• Presence of anosognosia in relation to the child's psychological factor, with lack of perception or concern regarding the child's psychological condition (affective neglect).

• Presence of speech with content that is inverse to reality (neurodysfunctional) that is present in moments of schematic neuroactivation states.

5-a) Presence of schematic inversion (Evaluate whether the content of the speech and the behavior are inversely true to clinical reality—effect produced);

5-b) Presence of schematic unreason (evaluate whether the content of the speech and the behavior are distorted from clinical reality); • presence of satisfaction of punishment, or limiting belief that justifies blaming the spouse.

• Absence of remorse and empathy regarding the rights of the other spouse and the child (affective neglect).

• Presence of destabilization of chronic mental health disorders, such as addictions and mood disorders;

• Presence of subclinical parental neglect during childhood;

9-a) Unconscious reproduction of NPS in the current relationship;

9-b) Fear of reproduction of parental neglect with excessive care;
9-c) Automatic and insistent responses, without reflection.
10) Sudden or new increase in parental alliance as behaviors with confirmed alienating function.

Behavioral evidence distinguishes value-driven attention from other established control mechanisms, suggesting a distinct underlying neurobiological process. [74-81] Recently, studies have begun to explore the neural substrates of this value-driven attention mechanism. [74-81]

Habitual attention is influenced by the reward of learning; therefore, it presents a neuronal pathway or signature. [74-81]

Converging evidence points to the idea that associative reward learning alters the way visual stimuli are processed in the brain, making learned reward cues difficult to ignore, as they may be habituated and even addicted. [74-81]

The identification of some PDs, some psychiatric comorbidities, and mainly maladaptive clinical neuromarkers (ONCs), associated with clinical neuromarkers in the child and in the parents themselves, are objective indications for clinical diagnosis, which should be performed by a physician, as with any other disease. [74-81]

In the presence of schematic neuroactivation states (PEs), it is common for there to be an inversion of the content spoken by the alienating spouse, in relation to the reality produced or effect produced, in which the behavior is also opposite to the discourse in cases of anasodiaphoria. [74-81]

Behavior that is consistent with the discourse, but both are inverse to reality or the effect produced, approaches the simulation hypothesis, with partial or total presence of AP, but remorse or regret are not felt, due to neurological deficit. [74-81]

Therefore, behaviors with unreason, neuroinsanity, lack of motivation, and interests in emotional and/or financial survival are characterized, which simultaneously have a primary function of obtaining and maintaining situational control, typical of psychopathy and sociopathy. [74-81]

In delusional cases and/or psychoses with ideas shared by more than one family member in AP, the Folie and Deux hypothesis should be remembered in the clinical evaluation.

Therefore, it is essential to standardize and update the evaluations in order to guarantee qualified, responsible, fair, ethical professional performance, mainly with the objective of avoiding the current professional malpractice and negligence, which are harmful to the health of children. The presence of a family member diagnosed with schizophrenia is essential, as several cognitive domains can be altered in family members.

Alienated Child

There is currently a growing scientific interest in behavioral and social cognitive neurobiology, but in practice there is no professional synchrony with reality, even with the voluminous and extensive medical and scientific literature that shows the damage and consequences in children who suffer trauma and adverse emotions.[74-81]

According to Brazilian psychologist LígiaCemim, if any sign of PA is found, special attention is required from legal professionals: the law even provides that, if any indication is declared, the process must be processed as a priority in order to preserve the psychological integrity of the child and adolescent, and she also emphasizes:

"The entire team that works on these cases needs to be alert to the signs. Some become emotionally ill, very fragile, because in their heads it is: 'My father mistreated my mother; he doesn't like me,' and they think: 'How can I love my father like that?' They are completely manipulated. And for the future, the void of the father or mother figure remains, this open wound in the emotional.´´

In a conflictual and aggressive relationship, the paternal and maternal images are received by the child's brain and harm the reference of the functional roles of the family system, and the child replicates them in his/her future interpersonal relationships due to significant brain mechanisms. [74-81]

Parental acts such as brainwashing are carried out by one spouse to another and demonstrate intrusive behavior and emotional neglect in a neurodysfunctional and/or pathological manner, which may have a punitive and/or aversive function and, in a hidden manner, invade the child's neurodevelopment without respecting the child's future and emotional present. [70-73]

Generally, the intrusive parent may be replicating the same neurodysfunctional mechanism experienced in childhood, even in another context. The child's brain is primordially sensitive to its safety, whether emotional or physical, and stress, regardless of the cause, generates typical and common neurodevelopmental dysfunction, regardless of race, genetics, culture, or economic factors. [70-73]

Lipp and Lucarelli described stress as a set of reactions of the organism to stimuli that require an adaptive effort, evolving according to four phases: Alert Phase, Resistance Phase, Near-Exhaustion Phase, and Exhaustion Phase. [37-54] The alert phase is characterized by the psychophysiological arrangement that begins from the moment the subject has contact with the stressor and has physiological reactions of fight or flight, such as increased heart pressure, contraction of the spleen, muscle tension, increased respiratory rate, among others. [37-54] The Resistance Phase is established when the stressor remains and the reactions of the alert stage decrease, but the organism remains in a state of tension.

The Near-Exhaustion Phase is established when the organism loses control due to excessive tension in the face of chronic contact with the stressor, in which emotional and physical resistance begins to break down, which can result in the onset of diseases. . The Exhaustion Phase is characterized as the pathological phase of stress, in which the development of psychological and physical symptoms occurs simultaneously, representing a threat to the subject's functionality. [37-54]

The Alert and Resistance phases indicate the evolution of stress throughout contact with the stressor, showing that the children in this study

were probably dealing with the situation of parental divorce in an intense and immediate manner, moving towards the establishment of the stressor as chronic, reacting to the consequences of this new reality. [37-54]

According to Brazilian lawyer and specialist in family law Eduardo de Oliveira Leite, professional approaches are not determined by the efforts of the alienating parent but by the results in the children, and he emphasizes:

"If the diagnosis is wrong, the treatment will certainly be wrong too, with unquestionable commitment from the people involved." Treatment cannot be based solely on the manipulation efforts of the alienating parent but must also take into account the possibility of success in each child."

The clinical signs are diverse in a child who is suffering. Many react with anxiety, nervousness, aggression, depression, isolation, escape, aversion, avoidance, and repeat the aggression received from their schoolmates. [37-54]

Also on the MPPR website, it was published as a measure of institutional prioritization:

"Considering the damage that the practice of alienation causes to children and adolescents and the importance of the matter, the National Council of the Public Prosecutor's Office issued Recommendation 32/2016 so that the issue is prioritized in the Brazilian Public Prosecutor's Office through administrative policies and guidelines that encourage the fight against parental alienation.

The document emphasizes that failure to comply with the duties inherent to parental authority constitutes moral abuse, which can cause personality impairment and sequelae, and that ministerial action is imperative in order to promote the effectiveness of the current Parental Alienation Law.

It is recommended that the Public Prosecutors' Offices make efforts to include the topic in training and refresher courses for members and employees, as well as to prioritize the topic in the strategic planning of the units. It also recommends that members working on the matter carry out coordinated actions to raise awareness among parents about parental alienation and the importance of shared custody as a means of preventing it."

Source:(https://mppr.mp.br/Noticia/Causadora-de-graves-prejuizos-aos-filhos-alienacao-parental-e-punivel-pela-legislacao)

4.8 Parenting Programs

In the United States, the Association of Family and Conciliation Courts (AFCC) articulates its mission to improve the lives of children by reducing family conflict, a well-established source of stress that poses a risk to children's health and mental and physical well-being. [37-54]

As a collaborative association of family court professionals, AFCC relies on education and research to identify best practices to optimize outcomes for court-involved parents and their children.[37-54]

Part of the mission of the Society for Prevention Research is to develop programs and policies for which there is scientific evidence to support widespread implementation because they prevent problems or promote well-being in the areas of physical, mental, and behavioral health.[37-54]

Prevention scientists use research findings on risk and protective factors associated with negative outcomes to design programs and then carefully evaluate their effectiveness using experimental study designs.[37-54]

Currently, more than 8 million children in the United States live with a divorced or separated parent, and there is compelling evidence that divorce confers risk for mental health problems, substance use and abuse, physical health problems, and developmental skill impairments. [37–54]

The high prevalence of divorce and separation and its association with deleterious outcomes suggest that effective prevention programs that are widely implemented could significantly reduce the public health burden of parental separation and divorce. [69–73]

O'Hara and Cohen have demonstrated strong evidence from their training and experience in prevention science and family law on the role of parent education programs for high-conflict separating/divorcing parents. [69–71] Currently, child and family mental health care, with early, effective, and scalable parent education programs, has the ultimate goal of protecting children after separation/divorce. [69–73]

Pollet and Lombreglia found that 46 U.S. states offered or required parent education programs. Court-ordered parenting programs are typically in-person and tend to be short, with most lasting less than 5 hours. [69–73]

Courts across the country, however, have expressed concern about the rate of parenting program participation, which ranges from 30% to 80%. [69–73] According to Mytton et al., these barriers include practical concerns such as lack of transportation and childcare, time demands, and scheduling conflicts. [69–73]

Single-parent families, larger families (and families from poor neighborhoods or with lower socioeconomic status) are particularly at risk for infrequent program participation.[69–73]

According to Winslow et al., parenting programs that require a larger time commitment, such as multiple sessions or homework assignments, have the lowest attendance rates.[69–73]

This evidence is concerning given that the programs empirically shown to be most effective are longer than 5 hours (e.g., 10 sessions) and emphasize home-based skill practice. [69-73]

The New Beginnings Program (NPP) is one of the most well-researched parenting programs for separated/divorced parents. [69-73]

NPP was designed to teach skills to change these factors in an engaging and effective way, and drew on adult learning theories to help parents learn new skills through a process that involves first understanding why the skill is important, then observing how the skill is taught effectively, and finally using the skills in practice in their daily lives. [69-73]

The teaching material was presented in a conversational, interactive style, and

parents were encouraged to share their experiences. [69-73]

Leaders reinforced parents for trying the skills and making small gains and used a collaborative approach to develop solutions to the challenges parents encountered. [69-73] Leaders fostered group cohesion to enhance the effects of the support mothers provided to others in using the skills. [69-73]

What we propose is an adaptation of the program with Mental Health Care, with intensive awareness, based on objective psychoeducation of neurological evolution and markers, associated with family social skills training, ensuring that the child has his/her neurodevelopment in the presence of both, even if separately. [69-73]

4.9 Therapeutic jurisprudence

In recent decades, a growing topic of research has been therapeutic jurisprudence, which promotes the empirical investigation of the impact of legal rules, processes, and actors on the well-being of court participants. [69-73]

According to Carpenter et al., Freckelton et al., Moore et al., and Roper et al., therapeutic jurisprudence encourages reform and practice of law that enhances the well-being of court participants and mitigates the risk of harm without compromising important justice values, including sound decision-making and procedural fairness. [69-73] Notably, Roper and Holmes argue that coroners who perceive therapeutic jurisprudence as a subordinate goal still report the need to conduct inquests in a manner that is least painful for the bereaved, necessitating an understanding of which approaches exacerbate distress and which alleviate it.[69-73] Australian surveys examining the views of court professionals have reported conflicting approaches to several aspects of procedures and some current realities:[69-73]

(1) The manner in which families are prepared and guided for inquests (whether police liaison officers, lawyers, or court staff effectively explain procedures in proactive communications to families) and the presence of biases of will by professionals; (2) Presentation of evidence (some coroners limit the amount of gratuitous evidence and the number of witnesses, while others routinely call witnesses or argue that family members may choose to leave the court if the evidence presented is too distressing);

(3) How to weigh the family's wishes when making decisions (some forensic doctors describe being influenced by the family's resistance to a discovery of suicide, while others present such a discovery regardless of the family's opinions); (4) Assessment of legal professionals who present defects of will, where the defense is undue and hidden with serious prejudice to parental rights, in which the injured party is a contractor, and the hired professional does not fulfill his duty. According to Prof. André Barros, in cases of error or ignorance, there is no induction of the subject into error; it may be a false notion about a certain object. Ignorance is the false notion, or complete lack of knowledge about a certain object. Errors can be classified as accidental and essential.

Essential or substantial errors refer to the nature of the act itself and affect the circumstances and main aspects of the legal

transaction.

Accidental error is about the secondary quality of the person or object, which does not vitiate the legal act, as it does not affect the declaration of will.

In Brazil, in Family Law, there are common phenomena of cases that feed the professionals' vice of will through laws that facilitate the strategic induction of essential errors for strategic interests, such as simulations of domestic violence, which automatically produce subclinical parental alienation.

With laws that prioritize only the rights of women, a professional culture is selected among lawyers, which perpetuates the professional vice of real rights of men and children but complicates the physical and mental health of children due to aspects of essential error.

Social vices are embodied in acts contrary to good faith or the law, harming third parties, being illicit, and being inconsistent with the regulations and codes of professional ethics.

Our exploratory and descriptive analytical study addresses the gap in forensic medical literature, highlighting the lack of professional care for children's health, and points out a possible setback due to essential error, which assists with updated scientific knowledge, guiding procedures for identification, monitoring, and prevention of psychological and organic complications to the child's integral health in cases of contentious divorces and parental alienation.

In the family law courts of Brazil, we have laws that aim to protect children and families; however, due to their outdated status and lack of technical and scientific information, the existing gaps are used by arbitrary professional manipulations by lawyers, which, when the professional relationship is superficial, generate alienating negligence that is directly harmful to the health and rights of the entire family.

5. Conclusion

We draw attention to the current lack of care for family and child mental health, which has an impact on occupational health. Legal professionals, social workers, and physicians must acquire this knowledge and awareness about hidden child psychological abuse.

This work points out a problem and suggests methods organized in clinical practice and neuroscience, such as the assessment of the ONCs personality microstructure associated with the assessment of adverse childhood emotions, which identifies intrusive, externalizing, and egocentric characteristics, parental capacity, and mentalism.

These are innovations in the objective operationalization of forensic medicine and family law. With a technical and systematic approach to family mental health, it presents great potential for therapeutic justice, which aims to prevent domestic violence and domestic crimes.

In addition to updating based on the objectivity of neuroscience and neurology, clinical neuromarkers direct the promotion of better consensus, in addition to promoting improved communication, and can contribute to

revealing the truth behind child abuse.

The principles in this framework suggest the general approach to the forensic evaluation of children and adolescents and are relevant to delinquency, child custody, child maltreatment, personal injury, and other court-ordered and non-court-ordered evaluations.

6. Conflict of Interest Statement

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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