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PAEDIATRICS

Implications of maternal difficulty in gastrointestinal functional disorders in infants

SUMMARY OF THE THESIS

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CONTENTS

2.3.1.Specificity of intrauterine life. Antenatal history or the origin defined

2.3.1.1.Neurontogenesis

2.3.1.2.Homogeneity of fetal live

2.3.1.4.Prenatal Memory

2.3.1.5.Prenatal totality as Origin

2.3.2.Approaching natal continuity

2.3.3.Nature of natal trauma

2.3.4.The psychic necessity of birth

2.3.5.Physical birth versus mental birth

2.3.6.Mental Motherhood

2.3.7.Stages of maternogenesis. The genesis of motherhood and the origins of the feminine

2.3.7.1.Constituting the Original

2.3.7.2.Breaking Syncretism

2.3.7.3.Self-attribution of maternal

2.3.7.4.Confirmation by Father

2.3.8. First eye contact - first glance

2.3.9.The Cycle of Giving

2.3.10.The child–"The little clinician"

2.3.11.Semiological repertoire

2.3.12.Breastfeeding – key diagnostic

2.3.13.Echobal scale and maternological videoclinics - Specific methods in maternalological diagnosis

2.4.New investigative methods for studying diseases and relationships parents-children

2.5.Psychosomatics of the infant and the maternalological perspective

INTRODUCTION

The present doctoral thesis, having as theme "***The implications of maternal difficulty in gastrointestinal functional disorders in the infant***", is based on the qualitative research of the emotional relationship of the mother-infant dyad and of the way in which this emotional relationship influences the symptomatology of the gastrointestinal functional disorders in infants. This is an adequate investigation method for understanding the interdependence between maternal disorder and the psychosomatic pathology of the infant, including gastrointestinal functional disorders. Furtheromore, the thesis also consists in the identification of the optimal way in which the emotional relationship of the mother-infant dyad is beneficial to be treated, respectively as a whole in a multidisciplinary team with maternal specificity.

Gastrointestinal functional disorders are the most common diagnosis in Gastroenterology, being an important group of conditions with complex management in terms of diagnosis and therapeutics. Although in the past there were several accounts of gastrointestinal diseases being of a functional nature, there was a lack of conceptual bases for their understanding and structuring until the end of the twentieth century. This fact has lead to the marginalization, over many centuries, of the research of the interactions between the somatic and the psyche, which led to the disregard of the gastrointestinal functional disorders and to the lack of a significant therapeutic result [1].

Systematic investigations in the last three decades of the twentieth century have made it possible for functional digestive pathologies to be recognized and accepted today as medical entities in their own right.

Functional symptoms during childhood may either accompany normal development (e.g. regurgitation in infants) or may appear as maladaptive behavioural responses to external or internal stimuli (e.g. frequent retention of feces in the rectum resulting from an experience with painful defecation) [1]. The symptoms of gastrointestinal functional disorders are generating discomfort, both for parents and children, as well as costs related to medical care, contradictory medical recommendations and a medicalization with limited effect in time.

Current literature data show that there is an interdependence between the psychological state of the parents, such as anxiety or depression, and the gastrointestinal symptomatology in infants and children. It is thus pointed out that the management of

frequent functional gastrointestinal disorders, such as infant regurgitation and infant colic, should also focus on educating and reassuring parents, accompanied by nutritional advice, recommendations on volume, frequency and feeding techniques [2] [5] [121].

The motivation for choosing the theme lies in the current medical approach, which does not always treat the mother and the child, especially in the first year after birth, as a biological unit, thus disregarding the connection of gastrointestinal functional disorders with the impairment of the emotional relationship of the mother-infant dyad. This can generate unreliable therapeutic results.

The scientific research of the present doctoral thesis, carried out during 2016-2022, focuses on the measurement of the mother-infant emotional relationship, as a generating factor in the pathology of gastrointestinal functional disorders. This is performed with the help of Maternology-specific instruments, with the aim of improving the characterization and treatment of this pathology.

The purpose of this study is researching how the emotional relationship of the mother-infant dyad influences the symptomatology of gastrointestinal functional disorders in infants, understanding the interdependence between maternal disorder and gastrointestinal functional disorders in infants, as well as identifying the optimal way in which the emotional relationship of the mother-infant dyad is beneficial to be treated, in a multidisciplinary team with maternal specificity.

The type of study of the present qualitative research is a clinical observational qualitative research, aimed at determining the possible role of a disturbed emotional relationship of the mother-infant dyad in the etiopathogenesis of gastrointestinal functional disorders.

The first part of the doctoral thesis includes an analysis of the specialized literature on the gastrointestinal functional disorders studied and the possible direct link between gastrointestinal functional disorders in the infant and the quality of attachment in the mother-infant dyad. Moreover, it provides a description of the maternal perspective of the somatic problems of infants in conjunction with the emotional state of mothers. In Maternology, the videoclinical observation of the moment of feeding the baby (either breast or bottle) allowed the early identification of the behavioral problems of the mother-infant dyad and including these issues nosographically in the group of transferoses ("maternal diseases") [121].

The special part of the thesis aims to present the qualitative research of the emotional relationship of the mother-infant dyad and of the way in which this emotional

relationship influences the symptomatology of the gastrointestinal functional disorders in infants. The current medical approach does not achieve a sufficiently nuanced perspective of the connection between gastrointestinal functional disorders and the disorder of the mother-infant emotional relationship. Maternology addresses the mother-infant emotional relationship and specifically treats the biological unit of this dyad, also proposing a new perspective on the gastrointestinal functional disorders of the infant.

By conducting this qualitative research, the attitude of the mother towards the infant during the breast/bottle feeding was explored and the subjects who constituted the therapy, non-therapy and the control groups were evaluated through a descriptive analysis of the results obtained from the application of the Beck depression questionnaire, the Echobal Scale and the recorded videos.

I GENERAL SECTION

1. Gastrointestinal functional disorders

Gastrointestinal functional disorders are a diagnosis frequently encountered within the Gastroenterology specialty and which can be identified by the presence of morpho-physiological anomalies, anomalies that are frequently found in combination with intestinal motility disorders, visceral hypersensitivity, alteration of the mucous and immune function of the intestine, alteration of the intestinal microbiota and anomalies of entero-cortical interaction [12].

Gastrointestinal functional disorders have had several definitions, influenced by social perspectives on the disease over time, the lack of scientific evidence, clinical training, as well as preferences in the doctor's personal approach.

Systematic investigations in the last three decades of the twentieth century have made it possible for digestive functional pathologies to be recognized and accepted today as stand-alone medical entities, based on the bio-psycho-social model of diseases.

The Rome IV consensus emphasized the disruption of the functioning of the gastrointestinal tract and proposed the concept of "*gut-brain axis*" disorders, so that gastrointestinal functional disorders arose as the result of complex and reciprocal interactions of biological, psychological and social components [2] [5] [6]. At the last meeting of the group of experts in 2016, the new Rome IV consensus was established, during which it was discussed more about the neurodevelopment of nociceptive pathways and the mechanisms of pain, the factors involved in the experience of pain and methods of assessing pain in infants and young children. The criteria for infant colic were then revised and modified to a large extent, while the criteria for regurgitation in the infant, cyclic vomiting syndrome, functional diarrhoea, constipation and dyschesia underwent insignificant changes [122].

A review in the literature carried out in 2014 aimed to bring together the published evidence and the opinion of practitioners on the prevalence and consequences of gastrointestinal functional disorders on the health of infants and in the long term. The specialists described the most prevalent functional gastrointestinal disorders as being: 20% infant colic, 30% regurgitations and 15% constipation, and less than 10% functional diarrhea and infant dyschesia, given the limited data in the literature [123].

In the first year of life, infants frequently show gastrointestinal symptoms such as regurgitation, rumination syndrome, cyclic vomiting syndrome, colic, diarrhea, constipation. Although these infants have a good clinical status, a good anthropometric and neurological development, without structural, anatomical or biochemical anomalies, there is an increase in addressability to the pediatric wards and family medicine offices. There is also an increased concern and anxiety of the parents, which can lead to a change in the infant's diet and the implementation of a drug treatment that would not be necessary [32].

Over the years, a bio-psycho-social model has been developed in order to explain the pathogenesis of gastrointestinal functional disorders, which involve improper interaction between biological, physiological, psychological and social factors.

According to the newest classification Rome IV, the gastrointenstinal functional disorders in newborns, infants and young children are:

G.1. ***Regurgitation in the infant*** defined as the most common gastrointestinal functional disorder in the first year of life, consists of the passage of gastric contents reflowing into the pharynx, oral cavity and/or nose, without the presence of vomiting effort and occurs in healthy infants between 3 weeks and 1 year, with a maximum of 67-87% between 2 and 4 months [122]. Treatment of regurgitation in the infant does not necessarily involve medication. Multiple randomized studies have shown that there is no benefit in administering proton pump inhibitors in the case of regurgitation in infants, nor in the case of the occurrence of gastroesophageal reflux disease [70].

G.2. ***Rumination syndrome*** is defined as the usual regurgitation of the contents of the stomach into the oral cavity, for the purpose of self-stimulation. The prevalence of rumination syndrome under one year is quite small. According to some authors, percentages of 2.4% were found [122].

In terms of treatment, infantile rumination syndrome has been shown to respond to empathetic and responsive care of the infant. There is no information about specific therapies or techniques applied to infants with rumination. The treatment aims to psychologically support caregivers, address their feelings towards the child and to improve their ability to recognize and respond to the physical and emotional needs of children [9].

G.3. ***Cyclic vomiting syndrome*** is characterized by repeated and stereotypical episodes of vomiting that last from a few hours to several days, with a return to asymptomatic periods. Although data on clinical development in infants and young children are rare, epidemiological studies report that cyclic vomiting syndrome can occur before the age of 3 years [9].

The objectives of treatment are aimed at reducing the frequency and severity of episodes and establishing a medical protocol for rescue therapy in the family environment and in the hospital. Prevention is advisable to be the standard in patients with frequent, severe and prolonged episodes, so it is necessary to identify the factors that trigger the episodes in order to avoid and treat them [69].

G.4. ***Infant colic*** is defined as a behavioural syndrome in healthy infants with an upward weight curve, aged between one and four months, a syndrome that involves long periods of crying time and difficult-to-calm behaviour (minimum three hours a day, at least three days a week) [122].

The initial treatment of colic is a hygienic-dietary treatment, consisting of recommendations for parents, such as: not to exhaust themselves (care of the infant in turns, including the use of babysitters), medical advice on the self-limiting appearance of this condition, evaluation and correction of food technique, hygiene of breastfeeding (breastfeeding position, post-breastfeeding eructation, interrupted breastfeeding, controlled diet of the mother, special formulas for artificially fed infants), as well as psychological counseling of the family.

Drug treatment is not recommended in the treatment of colic, unless an organic cause of colic is revealed.

G.5. ***Functional diarrhoea*** is defined by the painless daily recurrent passage of three or more large unformed stools for four or more weeks with onset in the early childhood years or in preschoolers. Prevalence in infant population under 1 year is quite low, studies from the USA and Colombia have revealed percentages between 0.5%-6.4% in a study to track cases of functional diarrhea in infants and young children [122].

In terms of treatment, no medical interventions are required, but effective reassurance of parents is important [9].

G.6. ***Infant dissection*** is defined as a visible effort to defecate, with screaming, crying for several minutes, with the face transformed, red or purple, and the symptoms usually persist for 10-20 minutes. The prevalence of functional dyschesia of the infant is small.

With regard to treatment, infant parents/carers need reassurance about the child's suffering and the absence of a pathological process requiring medical intervention [69].

G.7. ***Functional constipation*** [64] is defined, both in the infant and in the young child by painful and/or occasional defecation, and in the older child it may be associated

with fecal incontinence and refusal of defecation. Functional constipation has a prevalence in the first year of life of 2.9% and increases to 10.1% in the second year of life.

The symptomatology of functional gastrointestinal disorders can take forms from mild to extremely disturbing for the baby and parents and can induce parental anxiety, a low overall quality of life, with short- and long-term health consequences, shortening the duration of feeding exclusively to the breast, numerous changes in milk formulas, frequent medical consultations and high-cost healthcare.

A recent review of the literature showed that there is a clear impact of the symptoms of gastrointestinal functional disorder on the well-being of parents and infants in the short and long term. There are studies that have reported inconsolable crying and colic of the infant in the first three months of life, associated with lack of sleep and fatigue in mothers or even postpartum depressive symptoms. At the same time, insufficient mother-infant interaction, insecure mother-infant attachment, was also observed, along with feeding problems and frequent changes in formulas associated with bouts of inconsolable crying [9].

2. Maternological approach to gastrointestinal functional disorders in infants

Maternology is "*a therapeutic approach that attaches itself to the psychological dimension of motherhood and that targets the difficulties of the mother-child relationship*" [76], being constituted to understand and treat the spiritual motherhood and the processes of psychological birth of the human being. It is a new medical discipline, which was born in France in 1987, with the opening of the first Maternology service at the Charcot Hospital in Saint-Cyr-L'Ecole, Yvelines in France, led by Dr. Jean Marie Delassus and his team. This new branch of medicine has as main objectives the evaluation of the mental motherhood, the knowledge and understanding of the suffering within the maternal difficulty, the re-analysis of the mother-infant bond, the early return of developmental disorders in the infant and the prevention of their mistreatment. The concepts of Maternology allow a better understanding of the ways of access to the maternal relationship, but especially of the difficulties or obstacles that can prevent this access.

Research has shown that the newborn comes into the world already with a series of skills and experiences accumulated in the intrauterine period, both under the influence of external factors, such as the behavior and living environment of the mother, and under the

influence of internal factors, which are the mother's organism, the intrauterine environment, the blood flow that communicates with that of the mother.

In the time of intrauterine life, there is a homogeneity of living conditions, given by the fact that the uterine environment permanently ensures the satisfaction of fetal needs. The possibility of the fetus to feel the homogeneity is represented by its early sensory capacities. Several scientific researches on fetal behavior have led to the idea that memory develops even before the moment of birth. Currently, there is evidence of fetal memory and the learning process as early as the fifth intrauterine month [114].

The homogeneity of the environmental conditions, together with the homogeneity of the sensations and the recording of these sensory experiences, which constitute the prenatal memory, determine the state of prenatal totality that the fetus experiences, as defined by Delassus. In the conception of Dr. Jean-Marie Delassus, totality is the feeling of well-being, of paradise, which the fetus experiences as a result of the homogeneity of this intrauterine environment, doubled by the homogeneity of the senses. This totality is recorded in his brain in what are called free cortical territories.

At birth, a rupture occurs between the homogeneity conditions felt by the fetus as a prenatal totality and the total lack thereof postnatally. The associative areas that processed information and structured the homogeneity and totality of fetal experiences, in the postnatal stage, are suddenly invaded by a huge wave of information, absolutely new and foreign to the newborn, acting postnatally as a short circuit between sensory excitations and motor responses.

By going through the process of ***physical birth***, the newborn reaches an impasse generated by his motor incapacity, sharpening his senses, causing him to be very attentive to what his mother offers him, such as touch, smile, look, words, her smell, the taste of milk, in a word the effective support for a ***psychological*** birth. Therefore, it is a mother-newborn encounter at the level of the senses and a relationship that is created and grounded for psychological birth, and this "is done in and through the eyes of the mother[76]. The psychological birth begins from the moment when the first visual contact occurs after birth and will be completed towards the age of six to seven years. The mother's face has a role in this mother-infant dyad and serves as a mirror in its psycho-emotional development [82].

Dr. J.M. Delassus considers that "human motherhood cannot be limited to its physical appearance and is not sufficient to characterize it, nor to add to it all the physical reactions it causes. Mental motherhood is a process of transfer of the original totality,

determined by the ability to give"[76]. Therefore, psychological motherhood is a complex process through which the prenatal totality can be rebuilt postnatally, relying on the maternal capacity to give.

Human motherhood, which is essentially a psychological motherhood, goes through four stages of psychological development: 1) the establishment of the original; 2) breaking syncretism; 3) self-attribution of the mother; 4) confirmation by the father.

Thus, in order to become a mother, the woman has to go a way in her psychological evolution and this process is like an initiatory path at the end of which she decides to assume or not the status of mother.

In Maternology, the existence of a birth cycle of giving is highlighted, replacing the intranatal one of the feto-placental exchanges. The cycle of giving starts very shortly after birth and structures the dyadic mother-infant/child bond, based on reciprocity. The act of giving is best and deeply performed during the feeding of the infant, which makes breastfeeding or bottle feeding an essential mental situation.

Maternal difficulty is not necessarily a visible one or an expressed one, and it can exist without apparent signs. The child's condition and his abilities to relate inform us more precisely about the deep maternal state. The newborn/infant is for maternology ***the "little clinician"***, the one who effectively guides the specialist in the adequate diagnosis of his mother's difficulty. Observing and accompanying the breastfeeding situation (breast or bottle feeding) is the key in developing the appropriate diagnosis and initiating maternal therapy [78] [80]. It is important that in the first year of life, the mother and the infant function as a psychosomatic whole, and that any disorder of the child's health is concomitant with a disorder at the emotional level of the mother.

For the science of Maternology, ***the process of breastfeeding*** is not so much related to milk feeding as to the relationship established during this moment, often repeated. If the relationship in the mother-infant dyad is an emotionally balanced one, the feeding process is a mutual one. So, it is a continuous cycle, where the mother's giving of food receives in response the smile of the infant, who in turn reassures his mother, nourishing her emotionally. It is what J.M. Delassus calls ***the cycle of giving***, constituting the basis on which the trust of the infant/child in life, the love for life, is built.

The filming, examination and analysis of the moment of breastfeeding and/or bottle feeding, repeatedly, has highlighted the very early observation of the behavioral problems of the mother-infant dyad and, at the same time, allowed to follow their therapeutic evolution. By applying this method of videoclinical observation, one penetrates

inside the mother-infant exchanges, the images captured being a ***"veritable microscope of the unconscious"*** [112].

Videoclinic refers to the medical use of video recording means for the purpose of analyzing and diagnosing the difficulty of the mother-infant relationship. Thus, one can see and review, in slow motion, the scenes of interaction at the time of breastfeeding in the breast and/or bottle between mother and infant, to be studied by the therapeutic team consisting of pediatrician and psychologist [11].

Echobal scale is a maternal instrument developed and used to observe maternal and infant attitudes during the three phases of breast or baby feeding, and setting the main standards of breastfeeding: normal, inverted, repressed, conflictual or indifferent. Using video recording, systematic observation and inter-relationship analysis at the time of feeding, the expression of the face, the attitude of the body, how the mother physically supports the child, how she interacts with it, as well as how the infant interacts with his mother, a profile is identified on the Echobal scale. The characteristics of the moment of feeding observed and analyzed based on the breastfeeding standards proposed in Maternology provide valuable information about the psychological birth of the child. Thus, making Echobal diagrams is useful, both in maternal diagnosis and for monitoring the evolution and /or therapeutic progress.

The peculiarity of the newborn and the infant is that, although they endure stressful situations from the very early period, even immediately postnatally, they are difficult to quantify in terms of the intensity of the transitions. Dr. Jean Marie Delassus states that "the mother ensures the transition from the intrauterine biological totality to the postnatal psychological totality" [76].

Clinical observation of the newborn and infant reveals that the lack of transfer of totality from mother to infant makes it possible to develop birth diseases ("diseases of mental birth" or dysnatalities), observed in the child, as well as maternal diseases (suffering, difficulties of the mother) [80] [85].

At the current stage of observation and research, in order to characterize the main disnatalities, seven major entities have been described and updated: *fetal regression* (early refusal of contact with the outside world), *amorphous natal suspension* (the child seems suspended between two worlds, waiting), *passive natal resistance* (he has an attitude of ignoring, protects himself from practically any maternal intervention), *deficient natal opposition* (manifests a resistance to childbirth, expressed in the mode of collapse of vital functions), *active natal opposition* (the infant defends itself through vivid reactions,

systematized behaviors), *infantile marasm* (it appears later, as an aggravation of the previous ones, the child, very poorly nourished by the systematic refusal of food, can reach serious dystrophy), *pre-autistic behaviors* (withdrawal in itself and a serious inability to communicate). The recognition of the validity of these diagnoses requires a lot of attention, proving it necessary to know a new complex clinical field, which is that of mental motherhood [76] [80].

Maternology defines "***maternal difficulty***" as that normal human phenomenon in which the mother suffers because she does not find herself in the infant. The main stake of motherhood is the maternal possibility to give, the mother's ability to give and receive what the child resends. The mother's inability to give pushes the two of them into a deep crisis: the infant remains stuck between two worlds, reclaiming its psychological birth through multiple somatizations (inconsolable crying, colic, regurgitations, diarrhea or constipation, sleep disorders, respiratory, dermatological, etc.), and the mother may feel tension, anger, anguish, strengthening her belief that she is not good enough, which will further restrict her ability to give. These maternal disorders or difficulties have so many types of individual, family or transgenerational expressions that they are difficult to contain in classical psychiatric diagnoses.

The clinical approach only under the strictly psychiatric aspect of postpartum depression is incomplete, ineffective, but especially dangerous for the mental birth that is required to be carried out by the infant.

Theoretically, several types of questionnaires can be used for positioning the mother, from a psychoemotional point of view. Of these, the Beck Depression Inventory – second edition (BDI - II) *(Beck Depression Inventory-Second Edition)*, is one of the high-fidelity tools used to detect the presence and assess the severity of depressive symptoms.

A videoclinical observation of the mother-infant dyad at the time of feeding to the breast or bottle and completing the diagram in the Echobal scale generates the overview of blocked mental motherhood. The unidentified and untreated or improperly treated maternal difficulty can lead to a ***maternal collapse.***

Filming, examining and analyzing the moment of breast/bottle feeding, repeatedly, made it possible to observe, very early on, the behavioral problems of the mother-infant dyad and, at the same time, to follow their therapeutic evolution.

Maternology proposes a different, complex nosography in the description and identification of postpartum mental/ emotional disorders, which has etiological

substantiation and can give a clear direction regarding the therapeutic measures to be taken.

Maternal difficulties were classified, in terms of the disorder of transfer of the gift to the child, into transfer deficiencies and transfer neuroses, and based on the stages of maternalogenesis, which are necessary stages for the constitution of motherhood, each anomaly of transfer may occur differently, with its own clinical expression, depending on the time of occurrence.

Table 2.2. Nosography of transferoses [76]

		Stage of maternogenesis			
		1 ESTABLISHMENT OF THE ORIGINAL	**2 BREAKING SYNCRETISM**	**3 SELF-ASSIGNMENT OF THE MATERNAL**	**4 CONFIRMATION BY THE FATHER**
Transfer statuses					
DEFICIENCIES OF TRANSFER	A. STAGE DEFICIENCY **Materno-suppression**	Primary (foundation, foundation)	Structural	Conditional	Abandonment
	B. DEFLECTION OF THE STAGE **Maternal-addiction**	With archaic self	Maternal through submission	Maternal through domination	Paternal by subordination
	C. COMPENSATION OF THE STAGE **Defensive motherhood**	Formal	Ambivalent	Abandoning	Autonima
NEUROSES OF TRANSFER	D. **Maternity object**	Anobiectal	Oral	Anală	Genital
	Is. **Phantasmatic motherhood**	Absolute	Repairers	Virginal	Ideal

Maternology brings to the fore the fact that, on the one hand, there may be signs and symptoms in the infant, including gastrointestinal, as a result of the disorder of the mother-infant emotional relationship, and on the other hand, it is necessary to diagnose and treat the difficulty of being a mother in the first 9-12 months postnatally, ideally as early as possible to avoid conditions that can become chronic in the infant and later the child.

Maternology, as an integrated medical branch of Pediatrics, is able to generate the possibility of prevention, diagnosis and treatment. From the perspective of prevention, the pediatrician has an essential role in listening to and supporting the mother in difficulty with her infant, as well as in initiating the process of psychological childbirth. Immediately after birth, the neonatologist/pediatrician has the possibility to favor the meeting of the mother's eyes with that of the newborn, a phenomenon known as the "first glance", marking both the initiation of the psychic birth of the newborn and the birth of the maternal bond and parenthood [113].

II SPECIFIC SECTION

Taking into account the increased frequency of gastrointestinal functional disorders in pediatric practice, the impact on the psychosocial status of the child and his family and the current general medical approach, the present doctoral thesis aims at the qualitative research of the emotional relationship of the mother-infant dyad and of the way in which this emotional relationship influences the symptomatology of the gastrointestinal functional disorders in infants.

The objective of the work is represented by understanding the interdependence between maternal disorder and psychosomatic pathology of the infant, including gastrointestinal functional disorders in infants, as well as identifying the optimal way in which the emotional relationship of the mother-infant dyad is beneficial to be treated as a whole in a multidisciplinary team with maternal specificity.

3. Working assumptions and general objectives

In terms of working hypotheses:

1. If a maternal disorder can be highlighted by maternal diagnosis, and the infant has functional digestive symptoms, then maternal difficulty is a possible trigger in the appearance and/or persistence of gastrointestinal functional disorders in the infant.

2. If one can diagnose and treat the difficulty of mother-infant emotional relationship early, then the functional digestive symptomatology of the child can be influenced in the sense of improving it until its disappearance.

4. General methodology of research

The type of study of the present qualitative research is clinical observational qualitative research, aimed at determining the possible role of the impaired emotional relationship of the mother-infant dyad in the etiopathogenesis of gastrointestinal functional disorders.

The data collection and management was carried out between 2016 and 2020 and involved a total of 284 subjects consisting of the mother-infant dyad, observed in the Family Medicine cabinet. Included in the study were a number of 74 cases of infants with the diagnosis of gastrointestinal functional disorders and who met the Rome IV criteria. In

parallel, a control group of 74 mother-infant couples without a diagnosis of gastrointestinal functional disorders was selected. Within the study protocol, three evaluations of each mother-infant couple in the study group were performed, respectively an initial, intermediate and final evaluation, carried out during a minimum of three months of follow-up.

During the present research, strict compliance with ethical rules was taken into account, and the legal representatives of the infants included in the study signed, in advance, an informed consent to join the research.

The subjects were recruited from: a) infants registered on the PhD student's own list as a family doctor and who had digestive symptoms likely to be included in the diagnosis such as gastrointestinal functional disorders; b) infants arrived at the PhD student's office following the information sent by e-mail to other fellow family doctors, pediatricians and psychologists; c) infants who came through the Franco-Romanian Bebebienvenu Association; d) infants who come through other non-governmental organizations, families with children who were interested in maternalological concepts and therapeutics.

Within this research, three groups were set up, namely the therapy group, the non-therapy group and the control group.

This qualitative research explored the attitude of the mother towards the infant during the breast/bottle feeding, of the subjects who constituted the therapy groups, non-therapy and the control group, through a descriptive analysis of the results recorded from the application of the Beck depression questionnaire, the Echobal Scale and the videoclinical images.

Psychometric tools used in this research are: a) the Inventory of Beck Depression *(Beck Depression Inventory- Second Edition)* which is a self-evaluation tool consisting of a number of 21 items, which measures the severity of depression in adults and adolescents over 13 years of age. **b) Echobal scale (Echelle d'Observation de l'Allaitement)** to assess the breast/ bottle feeding situation, which provides important data on the quality of the emotional relationship of the mother-infant dyad.

In addition to the two instruments, the **observational method of video recording of the moment of breastfeeding in the three phases** was used, *namely* **absorption, dialogue of glances and dreaming**. The video recording method is aimed at identifying early maternal difficulties, evidenced by different bodily and emotional responses from the infant, but also from the mother. Completing the Echobal scale, following the maternological videoclinic evaluation of the moment of feeding, can fit the mother-infant

couple into a certain category of maternal disorders, also called transferoses, with the possibility of measuring the change in the emotional response of the two. By completing the phases of breastfeeding (breast feeding / nipple feeding) on the Echobal scale, several types of breastfeeding can be highlighted: direct, sketched, defensive, anarchic, non-existent.

The limits of the research are generated by the nature of the qualitative method used to obtain a thorough understanding of the emotional relationship of the mother-infant dyad and of the way in which this emotional relationship influences the symptomatology of the functional gastrointestinal disorders in infants. This method is however adequate method for this purpose and it analyzes the process, the attitudes of the subjects based on experiences, observation and interpretation. It has both a subjective and objective character, as well as a holistic character, in the sense of understanding the process in a rather global way.

The objective of this qualitative research is to understand the interdependence between maternal disorder and psychosomatic pathology of the infant, including gastrointestinal functional disorders, as well as to identify the optimal way in which the emotional relationship of the mother-infant dyad is beneficial to be treated, respectively as a whole in a multidisciplinary team with maternal specificity.

Qualitative research methods seek to analyze facts as a whole and evaluate the dynamics in the relationships between phenomena. This is also the objective of quantitative research methods, by means of measuring and statistical analysis of data.

The quantitative research performed in this thesis are of the confirmatory type, aiming at the verification of one or more hypotheses. The approach leaves room for a flexible investigation process, of an exploratory type.

The results of the study reveal the following aspects:

Following the **statistical analysis** of the data resulting from the application and processing of Echobal and Beck questionnaires, corroborated with the results provided by the videoclinical observation of the mother-infant interaction, the following aspects are highlighted:

a. The evaluation of the emotional state of the mother, by applying the Beck depression questionnaire showed a much higher percentage of mothers in difficulty in the study group compared to the control group, the lack of gastrointestinal functional disorders

in infants being correlated with a large percentage of mother-infant couples with normal emotional relationship.

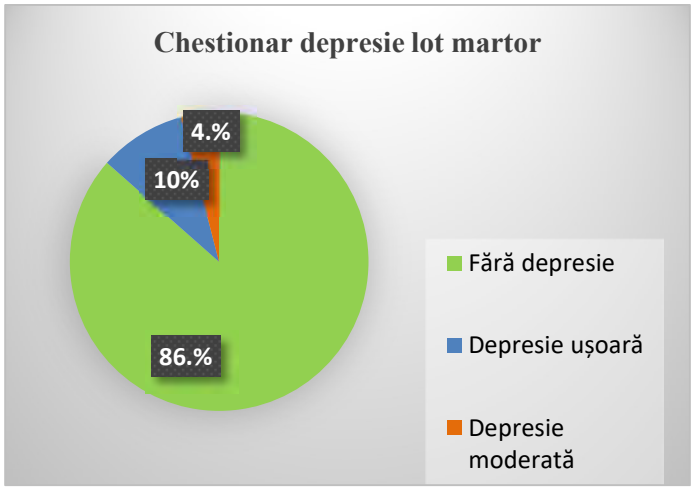

Figure 4.37. Structure of the control group according to the Beck depression questionnaire

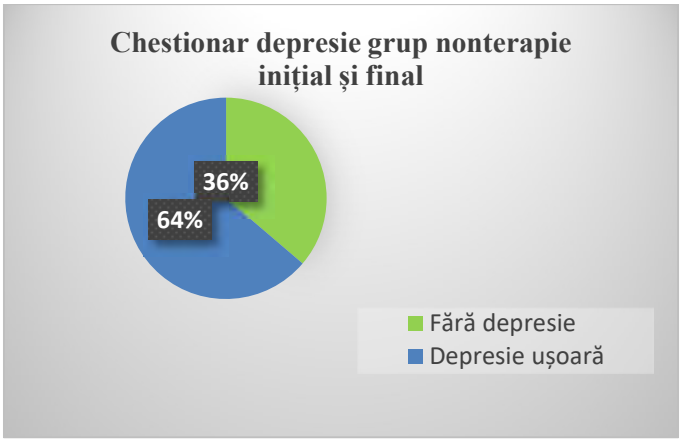

Figure 4.38. The structure of the nontherapy group according to the results of the Beck depression questionnaire applied to the initial and final evaluation

b. The evaluation of the emotional state of the mother in the nontherapy group did not register changes between the initial and the final stage, while in the therapy group there was a statistically significant decrease in maternal difficulty. At the beginning of the study, between 64% of maternal subjects in the nontherapy group and 87% in the therapy group showed mild and moderate depressive symptoms, while at the end of the research, a significant decrease in the percentage of depression to 56.5% was observed in the therapy

group. The therapy group recorded a statistically significant decrease in the presence of maternal disorder, from 100% at the initial evaluation, to 56.5% at the final evaluation.

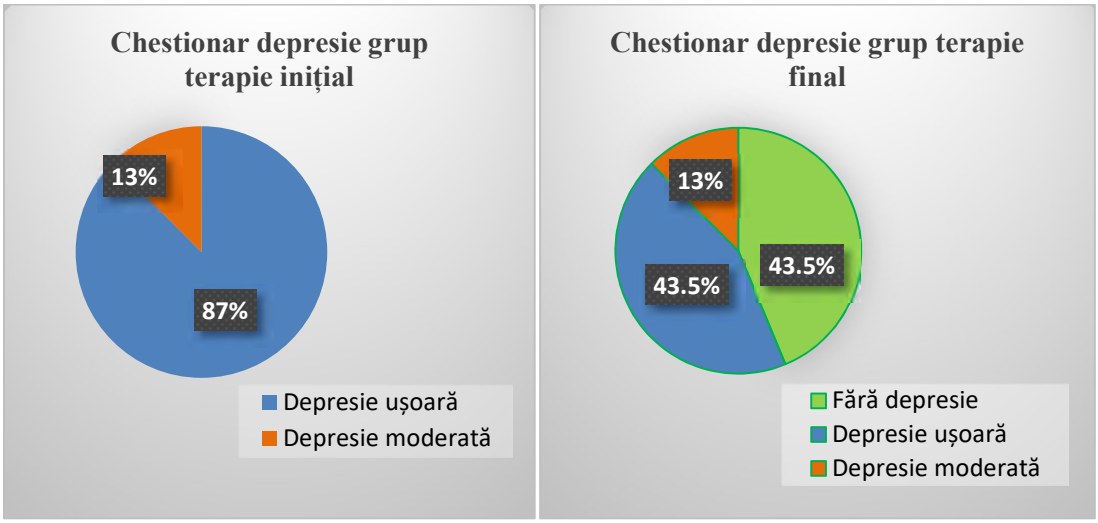

Figure 4.39. The structure of the therapy group (16 mothers) according to the results of the Beck depression questionnaire applied to the initial and final evaluation

c. The weights of infants born from birth by caesarean section do not differ statistically significantly between the control group and the study group, so it was not possible to identify a correlation of birth by caesarean section, gastrointestinal functional disorders in the infant and maternal difficulty.

d. The videoclinical observation of the moment of breast/nipple feeding and the elaboration of the corresponding Echobal scales highlighted an important percentage of mother-infant couples with normal breastfeeding, compared to the nontherapy and therapy group, the difference being statistically significant differences.

On the Echobal scale, the control presented, at a rate of 86%, a normal emotional mother-infant relationship, while 13% had conflictual breastfeeding, and 1% inverted breastfeeding (Figure 4.43.).

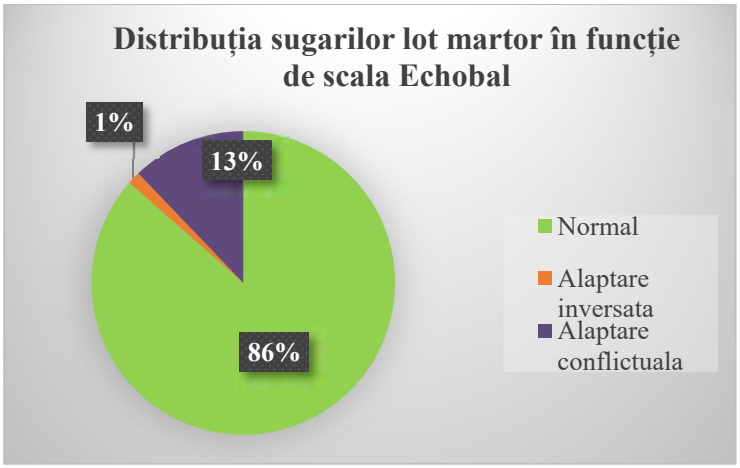

Figure 4.43. Distribution of infants of the control group according to echobal scale

In the nontherapy group there was a lack of Echobal scale modification throughout the three evaluations (initial, intermediate and final). The mother-infant couples observed throughout the study had the same emotional behavior during the three phases of breast/baby feeding, causing the same type of breastfeeding standard (Figure 4.44, Figure 4.45.).

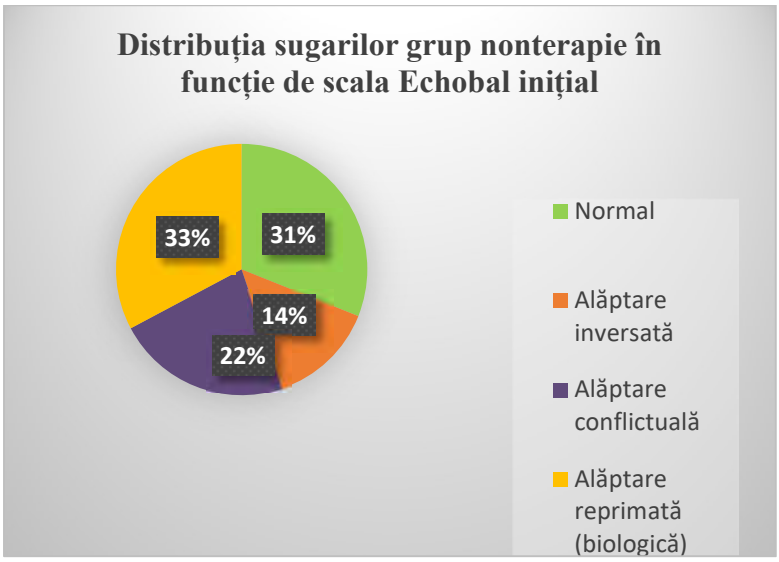

Figure 4.44. A. Initial distribution of infants in the non-therapy group according to Echobal scale

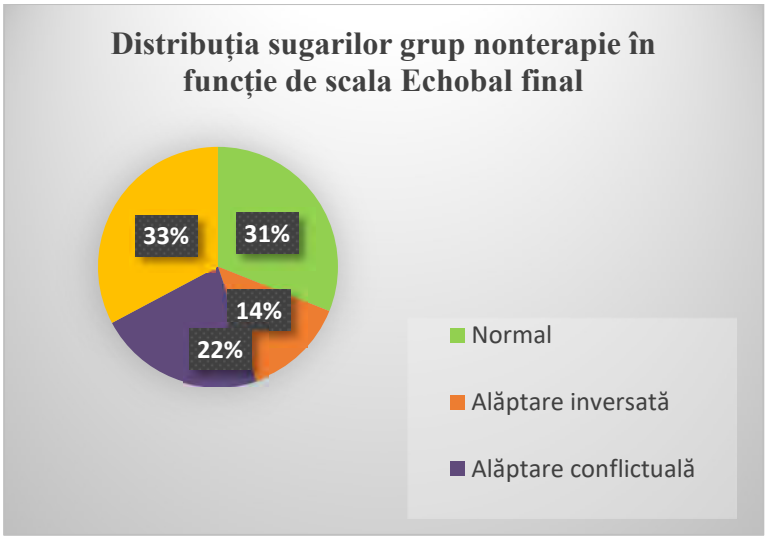

Figure 4.44. B. Final distribution of infants of the nontherapy group according to the initial Echobal scale

The group with maternal therapy had a different evolution regarding the Echobal scale, namely: if at the initial evaluation there were only mother-infant couples with modified scales (31% inverted breastfeeding, 25% repressed, 44% conflictual/ indifferent), after the final evaluation, child-mother couples with normal Echobal scale appeared (43%), while the percentage with reversed (13%), repressed (13%) and conflicted (31%) breastfeeding decreased. These decreases are statistically significant (McNemar test, $p < 0.05$).

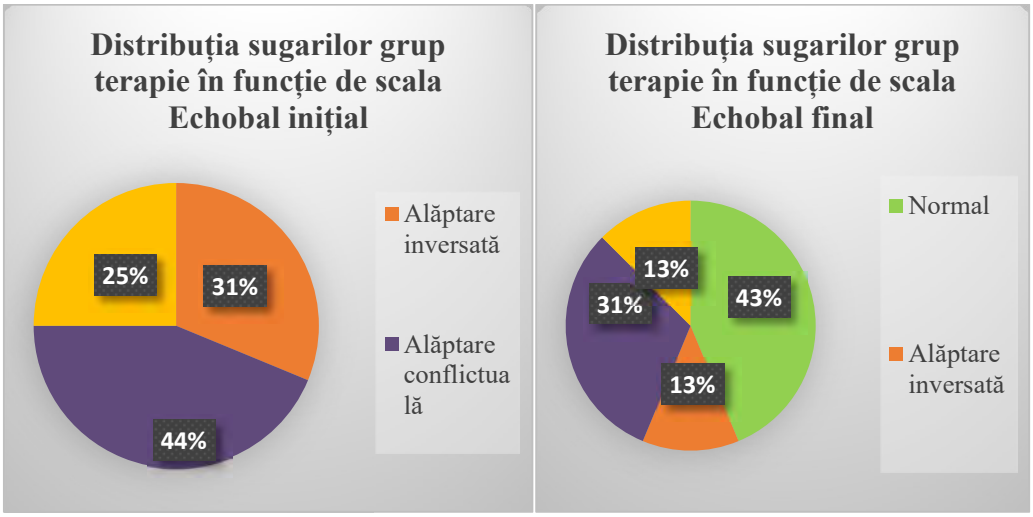

Figure 4.45. Distribution of infant therapy group according to the initial and final Echobal scale

e. Videoclinical observation of the phases of breastfeeding in the nontherapy group throughout the evaluations identified a slight change, showing a slow positive evolution regarding the mother-infant relationship, which was statistically insignificant. In contrast, the therapy group recorded a visible normalization of the phases of breastfeeding, statistically significant for all phases of breastfeeding at the end of the study. In relation to the observation of the phases of breastfeeding and the elaboration of Echobal scales, infants could be divided into several clinical pictures signaling the suffering related to the lack of mental birth.

In the control group, a large percentage of infants not enrolled in a form of dysnatality (86%) were observed and they had a normal emotional relationship with their mothers. Only a small percentage fell into various forms of dysnatality: 8% showed active natal opposition, 3% deficient natal opposition and 3% passive natal resistance (fig.4.46).

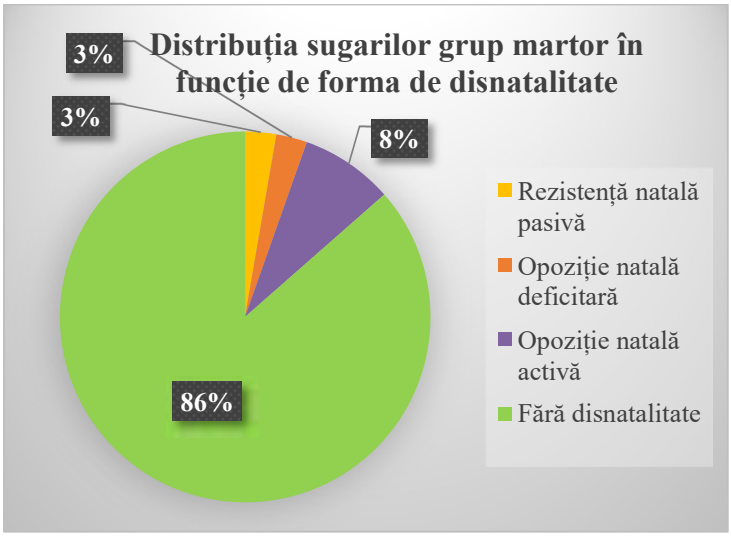

Figure 4.46. Distribution of infants in the control group according to the form of dysnatality

The infants of the nontherapy group showed no changes in the way they manifested themselves during feeding, their eating behaviour being the same throughout the study (Figure 4.47.).

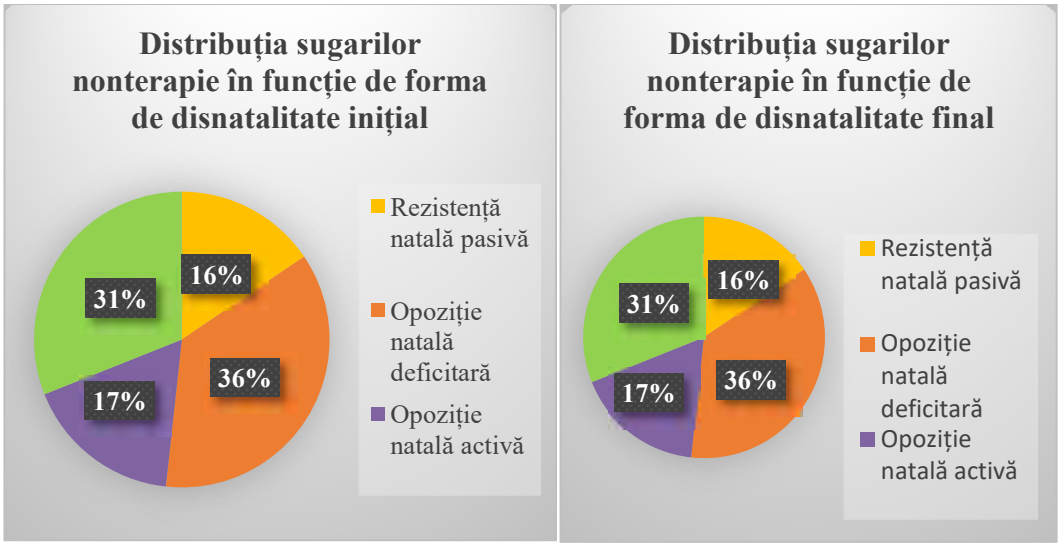

Figure 4.47. Distribution of nontherapy group infants according to the initial and final form of dysnatality

In the therapeutic group, an increased percentage of infants without dysnatality was observed at the end of the study (43%), with a healthy emotional relationship with their mothers, while the forms of disnatality initially existing had a decreasing weight (the comparison is made between the first and last evaluation). Thus, passive natal resistance decreased statistically significantly from 25% to 13%, the weak opposition from 56% to 31%, and the active opposition from 19% to 13% (Mc Nemar Test, p = < 0:002, p = < 0:038 and p = < 0:049) respectively (Figure 4.48).

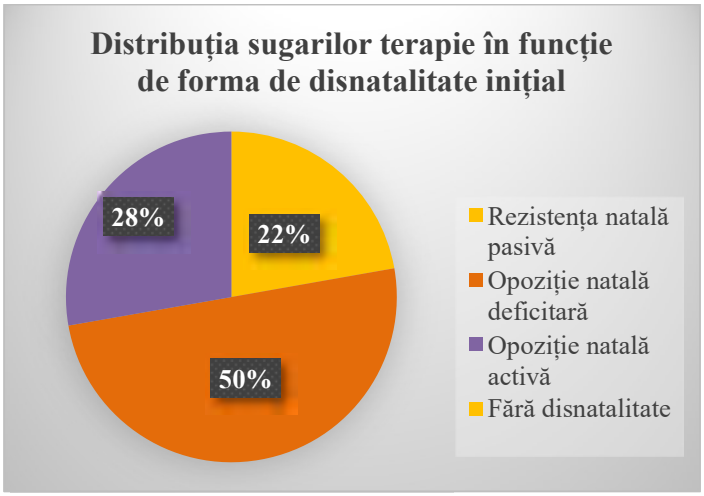

Figure 4.48.A. Initial distribution of infants of the therapy group according to the form of dysnatality

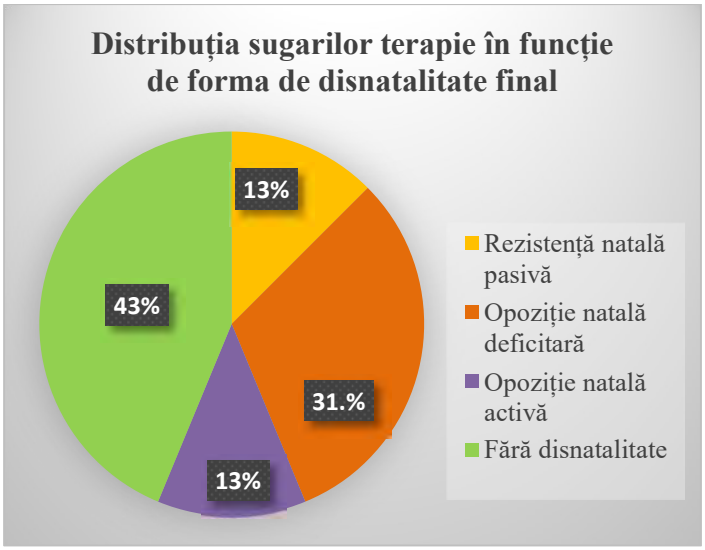

Figure 4.48. B. The final distribution of the infants of the therapy group according to the form of dysnatality

f. Inconsolable crying is an important symptom that was taken into account in the study, being often reported by mothers. It was present in a significant percentage in infants and after the five-month period, when the infant's colic usually disappears naturally. It was found that there was a positive, statistically significant correlation between inconsolable crying and the frequency of dysnatality on the one hand and the presence of maternal disorder on the other hand, until the end of the study.

g. The identified gastrointestinal functional disorders were predominantly regurgitations (between 63% in the therapy group and 86% in the nontherapy group), followed by colic (31-38%), constipation (13-24%), dyscheasia (3-13%) and rumination (2-12,5%), both in the nontherapy group and in the therapy group of the study group, in percentages similar to those described in the specialized literature. In both groups were also different combinations of functional gastrointestinal disorders present.

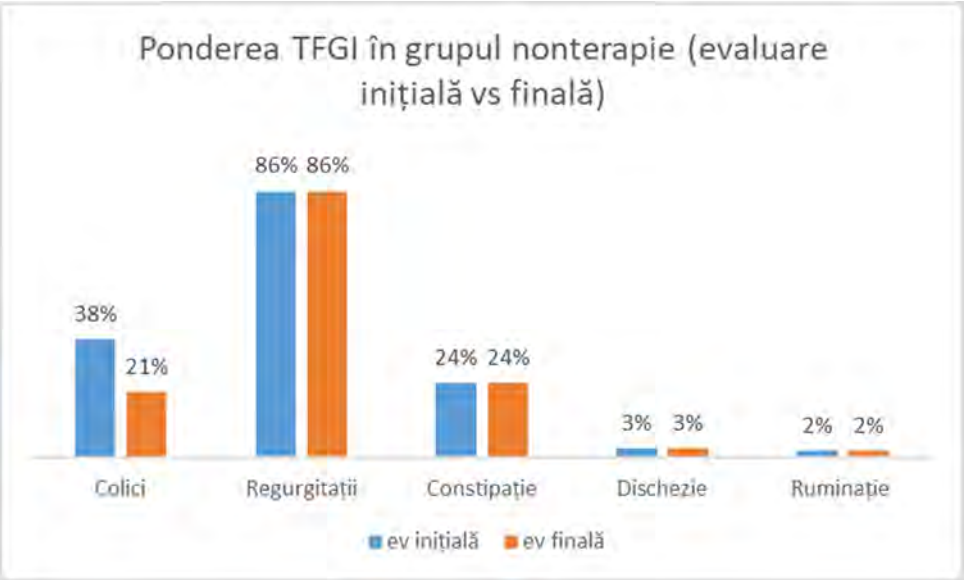

Figure 4.49. The main gastrointestinal functional disorders of infants and their frequency, in the group of nontherapy, at the initial and final evaluation

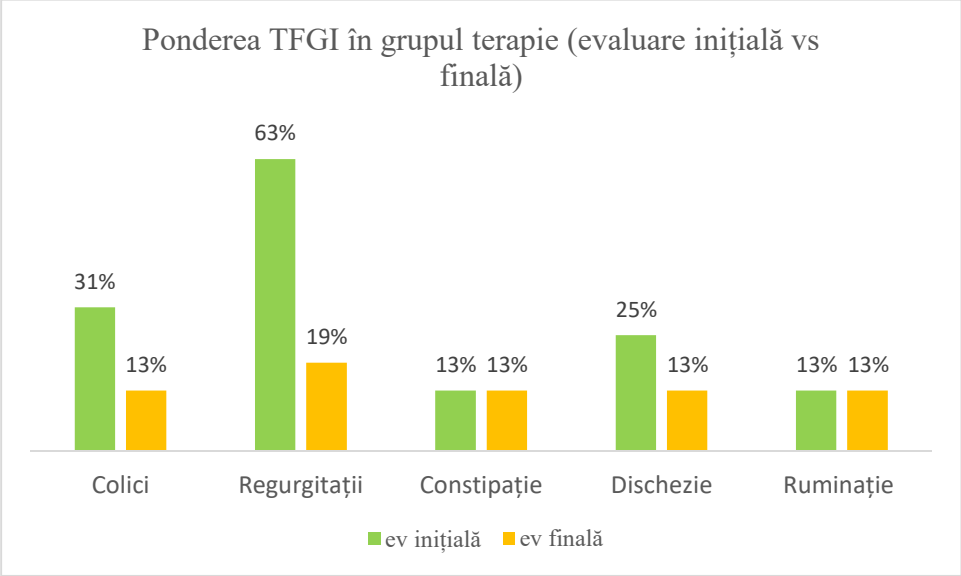

Figure 4.50. The main gastrointestinal functional disorders of infants and their frequency in the therapy group, at the initial and final evaluation

h. In the nontherapy group there were no statistically significant changes in the presence of gastrointestinal functional disorders at the end of the study. In the therapy group regurgitations decreased statistically significant at the end of the study, and the number of combinations of gastrointestinal functional disorders also decreased.

i. The comparative analysis of gastrointestinal functional disorders and the presence/absence of maternal disorder revealed for the nontherapy group a lack of percentage changes in regurgitations and constipation, while colics followed the natural pattern of extinction before four to five months of life, without any intervention. In the therapy group, regurgitations significantly decreased, in a positive correlation with the normalization of the Echobal scale, the phases of breastfeeding, the normalization of the questionnaires of depression and the disappearance of maternal disorder.

j. Accompanying during the breastfeeding process, as a maternal intervention and containing the mothers in the support group created, had the visible effect of the appearance of moments of authentic mother-infant connection, the meeting of the eyes, the observation of the cycle of giving and the transfer of emotions between the two. At the end of the study, consisting of the three evaluations by applying the Echobal scale and the Beck questionnaire, an important percentage (44%) of mothers and infants was obtained, which revealed a normalization of the breast and/or bottle feeding phases of infants.

5. Conclusions of the study

The findings of the study revealed the following aspects:

1. Both in the structure of the control group and in the study group there was a uniform distribution of mother-infant couples in terms of the variables used.

3. The share of breast-fed infants was higher than the one of infants fed mixed or bottle-fed, a distribution which is present both in the study group and in the control group.

4. The age of the infant at the time of enrollment in the present qualitative research influenced the presence of a certain type of functional gastrointestinal disorder and it could be observed that the share of gastrointestinal functional disorders was correlated with that described in the specialized literature mentioned in the first part of the present doctoral thesis.

5. The percentage of mothers in difficulty with their infants was much higher in the study group compared to the control group, with a statistically significant difference.

6. The highest prevalence of gastrointestinal functional disorders in the study group was that of regurgitations, followed by colic, constipation, dyschesia and rumination.

7. With regard to the different forms of gastrointestinal functional disorders, there were significant differences in the evolution of the functional digestive symptomatology in the infants of the nontherapy group compared to the therapy group, in the sense that the

regurgitations were kept at a high percentage in the nontherapy group throughout the research, being also the most frequent form of gastrointestinal functional disorder present in the studied group. In contrast, the decrease was statistically significant in the therapy group until the end of the study.

8. With regards to the concomitant presence of one or more types of gastrointestinal functional disorders, there was a significant dynamic over the course of the present research, in the sense that at the beginning of the research, considerable percentages of combinations of two or more gastrointestinal functional disorders were present both in the nontherapy group and the therapy group, and at the final evaluation there was a statistically significant decrease in the combinations of two or more concomitant gastrointestinal functional disorders, with the total disappearance even in a significant percentage of infants in the therapy group.

9. In the group with maternological therapy, a statistically significant decrease of the maternal disorder was observed at the end of the present research, simultaneously with the reduction to extinction of the gastrointestinal functional disorders. The evolution of regurgitations in the therapy group was statistically significant, followed by the infant's colic, while constipation, dyschesia and rumination were not influenced.

10. A significant correlation was between the inconsolable crying claimed by the mothers as an important symptom and the presence of dysnatality and maternal disorder in the study group, compared to the control group.

11. From a maternalological perspective, the analysis of the emotional relationship of the mother-infant dyad demonstrates the existence of the connection between the symptomatology of the infant and the quality of the emotional relationship of the mother-infant dyad, which is likely to be diagnosed and treated.

12. The study could confirm the hypothesis that between the emotional relationship of the mother-infant dyad and some functional gastrointestinal disorders of the infant there is a statistically significant relationship recorded at the level of the study group, where maternal difficulty is a possible trigger in the appearance and/or maintenance of gastrointestinal functional disorders.

13. Between the emotional relationship of the mother-infant dyad and the infant regurgitations there is a statistically significant relationship at the level of the group that received maternal therapy. This supports the hypothesis that the identification and early treatment of the difficulty of emotional relationship of the mother-infant dyad can

influence the gastrointestinal functional disorders of the regurgitation type in the infant in the sense of improvement until total disappearance.

From the point of view of future directions, Maternology constitutes a science that brings a new overview, both in understanding and in approaching the gastrointestinal functional disorders of the infant and the maternal emotional disorders. With the development of the process of careful observation of the mother-infant relationship, Maternology promotes the treatment of the mother-infant dyad as a physical and psycho-emotional whole. The observation of the reactions, of the nonverbal language, of the gestures present in the mother-infant couple through the videoclinical filming highlights the existence of maternal problems, an undeniable testimony of a painful psychological birth of the infant.

The clinical observation of the breast- and/or bottlefeeding situation through the prism of applying the Echobal scale, corroborated with the completion of a minimum anxiety/depression questionnaire for mothers, are two effective criteria in guiding the positive diagnosis of the disorder of the emotional relationship of the mother-infant dyad. They can serve to improve the management of gastrointestinal functional disorders in infants by introducing the emotional component in the therapeutic approach.

Taking into account the abovementioned results, the usefulness ***of the "diagnostic and treatment algorithm of the mother-infant emotional relationship with gastrointestinal functional disorders in the family doctor's and pediatrician's office"*** (Figure 4.58 of the doctoral thesis) is highlighted**.**

The results of the present qualitative study thus reveal the importance and usefulness of training specialists in the science of Maternology as soon as possible, as well as of developing a dedicated specialty to care together for the mother-infant dyad.

6. CONCLUSIONS AND PERSONAL CONTRIBUTIONS

The results revealed in the development of the present qualitative research can be concluded as follows:

1. In mother-infant couples, in which the maternal disorder has been identified and diagnosed, both in the control group and in the study group, the lack of physical and emotional satisfaction of the infant is visibly manifested by inconsolable crying and systematic refusal of food, as shown by the images revealed by the videoclinical recording of the breast/bottle feeding process.

2. The age of the infant, at the time of enrollment in the present qualitative research, influenced the presence of a certain type of functional gastrointestinal disorder and it could be observed that the percentage of gastrointestinal functional disorders was correlated with that described in the specialized literature mentioned in the first part of the present doctoral thesis. Regurgitations had the highest incidence, followed by colic, constipation, dyschesia and rumination. The appearance of signs and symptoms of gastrointestinal functional disorders in the infants included in the research began from 5-6 weeks of life, overlapping with the maternological observation of highlighting the direct link between the symptomatology of the infant and the presence of maternal disorders.

3. The evaluation of the current emotional state of the mother, carried out by applying the Beck depression questionnaire, revealed a lack in dynamics in depressive symptoms in the nontherapy group of the study group, throughout the research. In contrast, there was a statistically significant decrease in the presence of mild depressive symptoms between the first and last evaluation in the therapy group, respectively from 100% to 43.5% according to Figure 4.39.

4. The percentage of mothers in maternal difficulty in the study group recorded higher values compared to the control group, this being correlated with the presence of gastrointestinal functional disorders in the study group and their absence in the control group. The difference was statistically significant between the three groups studied, namely, the control group and the study group, consisting of the nontherapy and therapy group. In the therapy group there was a statistically significant decrease in the presence of maternal disorder, respectively from 100% at the first evaluation, to 56.5% at the last evaluation (according to table 4.12 of the doctoral thesis).

5. The videoclinical follow-up of the breastfeeding phases and the application of Echobal scales in the observed infants revealed that a significant percentage (according to table 4.9 of the thesis) of mother-infant couples showed normal type of breastfeeding in the control group, compared to the study group, identifying statistically significant differences (86% in the control group, 31% in the nontherapy group and 0% in the therapy group at the initial evaluation). In the nontherapy group, the slow normalization of the phases of breastfeeding in several mother-infant couples is statistically insignificant, while in the therapy group there was a visible normalization of the phases of breastfeeding, which is statistically significant for all three phases of breastfeeding (figures 4.41.and 4.42), achievingthe normalization of the phases of breastfeeding to a percentage of 43% of mother-infant couples compared to the initial moment (Figure 4.45).

6. The preparation of Echobal scales and the videoclinical follow-up of the phases of breastfeeding allowed the classification of infants in several clinical pictures, signaling the suffering related to the lack of mental birth of the infant, generically called dysnatalities in Maternology.

7. Regarding the different forms of gastrointestinal functional disorders, there were significant differences in the evolution of functional digestive symptomatology in infants in the nontherapy group compared to the therapy group, noted between the initial and final evaluation, according to Figures 4.49 and 4.50).

8. Regarding to the concomitant presence of one or more types of gastrointestinal functional disorders, there was also a significant dynamic within the present qualitative research.

9. Inconsolable crying was observed in a percentage of infants included in the study and claimed by mothers as an important symptom, so it was taken into account to compare the frequency with which it occurs in infants with gastrointestinal functional disorders, in relation to those included in the control group.

10. The results confirmed the hypothesis that between the emotional relationship of the mother-infant dyad and some gastrointestinal functional disorders of the infant there is a statistically significant relationship recorded at the level of the study group (according to Table 4.12), where maternal difficulty is a possible trigger in the occurrence and/or maintenance of gastrointestinal functional disorders.

11. Between the emotional relationship of the mother-infant dyad and the infant regurgitations, there is a statistically significant relationship at the level of the group that received maternal therapy, which supports the hypothesis that the identification and early

treatment of the difficulty of emotional relation of the mother-infant dyad can influence the gastrointestinal functional disorders of regurgitation type in the infant in the sense of improvement until total disappearance.

The value of this research lies in highlighting the interdependence between maternal disorder and psychosomatic pathology of the infant. The present study contributes to the development of the literature with information on the understanding of the notion of mental motherhood, on how the emotional relationship of the mother-infant dyad is likely to influence the health of the infant, as well as on how to treat the symptomatology of the gastrointestinal functional disorder of the infant and maternal disorder.

Maternology as a science, which studies psychological motherhood, brings a new perspective in addressing the digestive functional sufferings of the infant, since it integrates the suffering of the child from the perspective of the emotional relationship of the mother-infant couple, treating them together, in a biological and functional unit.

Own contributions consist of:

a) promoting concepts and the science of Maternology in Romania through the present research, which is part of an extensive approach carried out in the last ten years within the Franco-Romanian Association Bebebienvenu and the Romanian Association of Maternology;

b) emphasizing the relationship between the gastrointestinal functional disorders and the dynamics of the emotional connection of the mother-infant dyad through the existence of the statistically significant correlation between the presence of gastrointestinal functional disorders in the infant and the emotional relational difficulty within the mother-infant dyad. This was evidenced by the disappearance of the infant's symptomatology with the normalization of the relationship, following the psychological intervention with maternal specificity, treating the mother-infant dyad together;

c) promoting the implementation of the Echobal scale, as a screening and diagnostic tool to identify the difficulty of the emotional relationship of the mother-infant dyad with gastrointestinal functional disorder, accessible to the family doctor and pediatrician.

d) promoting and encouraging a screening for anxiety and depression of postnatal mothers**;**

e) proposing an ***algorithm for the identification, diagnosis and therapy of gastrointestinal functional disorders in infants***. This algorithm for screening and identifying the mother-infant emotional relationship is intended to be one accessible to the

family doctor and pediatrician, who also care for infants with digestive pathology of the type, but it can also be used by other specialists who enter into relationship with the mother-infant dyad such as neonatologists, obstetrics and gynecology doctors, psychiatrists, midwives, nurses, social workers, psychologists, lactation consultants, doula (the person accompanying the mother at birth), Lamaze prenatal educators.

The algorithm for screening and identifying the mother-infant emotional relationship individualizes three categories of infants with gastrointestinal functional disorders:

a) ***The group of infants with gastrointestinal functional disorders and a normal emotional relationship with their mothers*** – this includes infants who fall within the normal range following the application of the Echobal scale (normal standard of breast feeding / nipple) and mothers who are within the normal range of results following the application of the Beck Depression Inventory. They will be periodically evaluated during routine examinations by the family doctor at one month, 2 months, 4 months, 6 months, 9 months.

b) ***The group of infants with gastrointestinal functional disorders and altered emotional relationship with their mothers*** - here are the infants who register modified results on the Echobal scale, in the sense that sketched, defensive, anarchic, non-existent breastfeeding standards are highlighted, and mothers are within the normal range of the results obtained by applying the Beck Depression Inventory. In these infants, after 5-6 weeks of life, the first signs of "malbirth" appear, which are alarm signs regarding the deficient initiation of the mental birth process, transposed into the modified phases of breast / bottle feeding, generated by their characteristic sensitivity. Although the maternal subjects record normal values in the application of the Beck questionnaire, their suffering exists, but being concealed cannot be identified at this time by the specialist. From the perspective of Maternology, the infant is the "little clinician" for the specialist, confirming the diagnosis of the disorder of the emotional relationship by the symptoms that the infant manifests. The observation and analysis of the images highlighted by the videoclinical instrument in the therapy group studied here undoubtedly certifies the presence of maternal difficulty, refuting the results that are within normal limits, obtained by the mother subjects by applying the Beck questionnaire. The maternal subjects in this group qualify for a psychological therapy program focused on Maternology-specific elements.

c) ***The group of infants with functional gastrointestinal disorder and altered emotional relationship with their mothers*** - here are found infants with noisy symptomatic clinical manifestations, with inconsolable crying or on the contrary calm, but

with severe eating disorders, and the mother subjects registering results that reveal anxiety and depression by applying the Beck depression questionnaire, with psychotherapeutic and psychiatric intervention being necessary, sometimes requiring support medication. In this case, it is favorable for the psychoemotional and physical health of the mother-infant dyad to benefit from specialized maternological services, where a multidisciplinary team consisting of family doctors / pediatricians, psychologists, psychiatrists / pediatric psychiatrists, obstetrics and gynecology doctors, nurses, social workers can function.

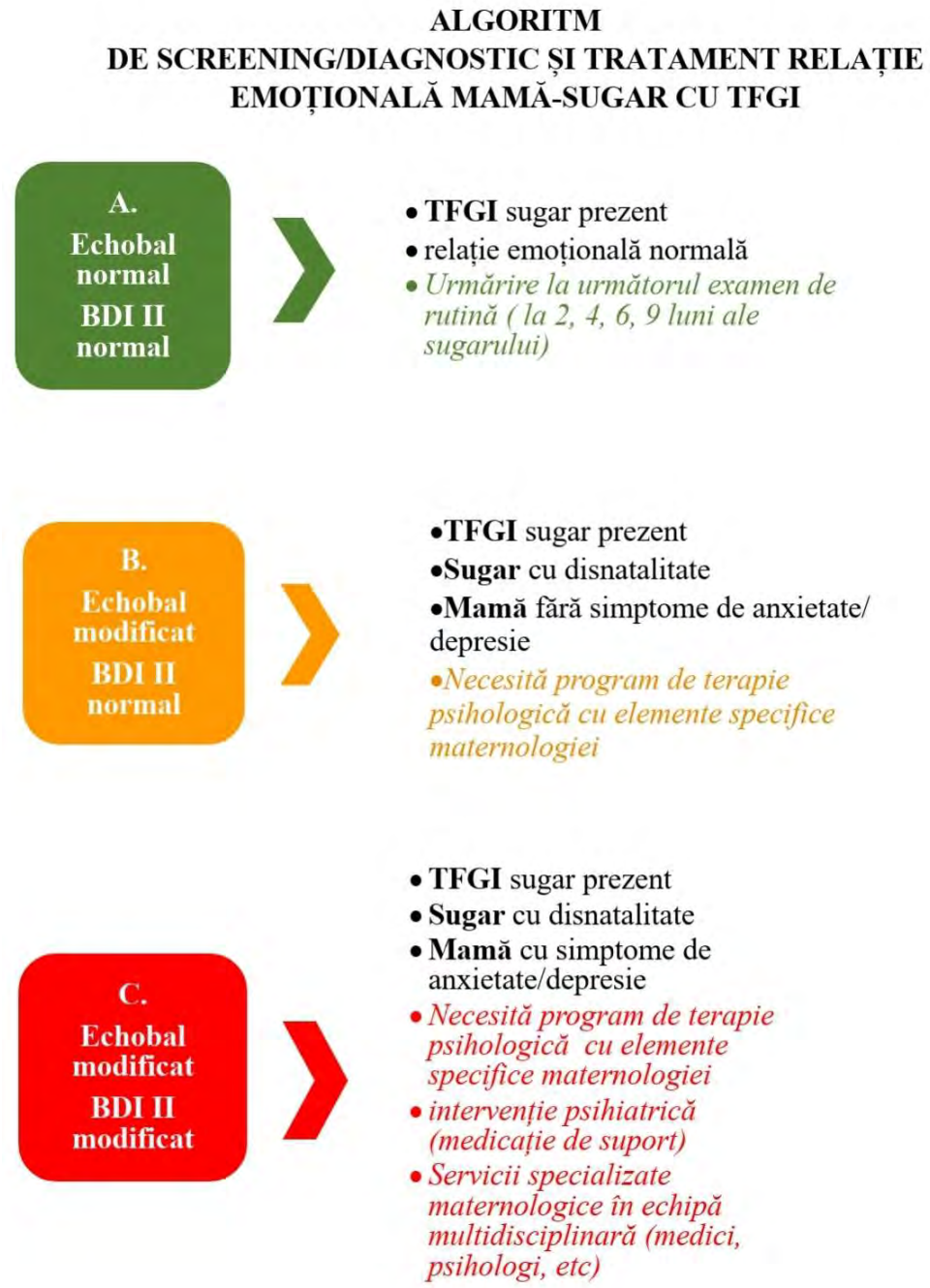

Figure 4.58. Algorithm of diagnosis and therapy of the mother-infant emotional relationship with gastrointestinal functional disorders

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LIST OF PUBLISHED SCIENTIFIC PAPERS

Published scientific papers

1. **Daniela Marincaş**, Simina Angelescu, Coriolan Ulmeanu, *Role of maternolgy in functional gastrointestinal disorders in infant*, Romanian Journal of Pediatrics Vol. LXVIII No. 1 Year 2019, https://rjp.com.ro/articles/2019.1/RJP_2019_1_EN_Art-02.

2. **Daniela Marincaş**, Simina Angelescu, Vlad Dima, *Dynamycs of the mother-child relationship in the presence of functional gastrointestinal disorders in infants*, Romanian Medical Journal, 2021; 68 (Suppl 5) DOI:10.37897/RMJ.2021.S5.17, https://rmj.com.ro/rmj-vol-lxviii-suppl-5-year-2021/ .

3. Simina Angelescu, **Daniela Marincaş**, *The Maternal Postnatal Disorders-Assessment and Intervention from a Maternological Perspective*, Journal of Experiential Psychotherapy Vol.22, No 1(85), March, 2019, https://jep.ro/images/pdf/cuprins_reviste/85_art_06.pdf .

4. **Daniela Marincaş**, *Maternology Point of View on Infant Functional Eating Disorder , A Case Study*, Wissenschaft und Erfahrungsweisheit in der ISPPM, Eine notwendige Diskussion uber Spiritualitst und Achtsamkeit (Berlin, 2017),177-185, Mattes Verlag Heidelberg.

5. Simina Angelescu, **Daniela Marincaş**, *The Birth Story. Using Psychodrama and Maternology in Prenatal Education and Postnatal Emotional Support*, 31st annual Conference of the ISPPM in cooperation with the Fulda University of Applied Sciences, Geburtshilfe im Wandel, Traumatische Geburtserfahrung als lebenslanger Belastungsfator-Gesunde Geburtserfahrung als lebenslange Ressource (Fulda, 2019), 46-54, Mattes Verlag Heidelberg.

Scientific presentations

6. **Daniela Marincaş**, *The Role of Maternology in understanding the functional digestive pathology in infants- preliminary study*, 1 International Perinatal Total Health Congress, "The First Thounsand Days of Life Innovations and Transdisciplinary Collaborations" Perinatal 2018 27-30 June, Sinaia, Romania.

7. Simina Angelescu, **Daniela Marincaş**, *Video-clinical observation of breastfeeding- Understanding and holding a perinatal woman in distress from Maternology perspective*, "International Birth Teams", Birth Psychology Congress, Istanbul, 2019.

8. **Daniela Marincaş**, Monica Mirescu, *Maternology, maternity diseases and the process of breastfeeding*, National Conference of the Romanian Association for Pediatric Education in Family Medicine, Sinaia, February 27-March 1, 2015.

9. **Daniela Marincaş,** Simina Angelescu, *Maternal clinical case: Infant eating disorder*, National Conference of the Romanian Association for Pediatric Education in Family Medicine, Sinaia 26-28 February 2016.

10. **Daniela Marincaş**, Luminița Gheorghică, *Maternologia-Role in the mental health of the mother-child couple in the period 0-1 year*, The Vth Congress of Child and Adolescent Psychiatry and the XIIIth National Conference on Mental Health of the Child and Adolescentului, Brasov, June 2-4, 2016.

11. **Daniela Marincaş,** *Maternology and Women's Health*, National Forum of Integrative Medicine, with the theme "Diagnosis and treatment of oncological disease - challenges and interferences with alternative medicine", October 13-15, 2016.

12. **Daniela Marincaş**, Simina Angelescu, *Maternology and Prematurity*, Conference of the Române society for Education Pediatrică in Medicina de Familie, "Prematurity- from Guidelines and Protocols to the Follow-up Program 0-3 years", Bucharest, November 18-19, 2016

13. **Daniela Marincaş**, Simina Angelescu, *Integrating the maternological perspective in the family doctor's practice*, Arepmf National Conference, Sinaia, February 23-26, 2017.

14. **Daniela Marincaş**, *Breastfeeding matters- The role of the family doctor. The Maternological Perspective*, the National Conference of the Association of Lactation Consultants in Romania, "Breastfeeding matters. The Role of the Doctor", Bucharest, October 6-7, 2017.

15. **Daniela Marincaş**, Simina Angelescu, *Prevention and postnatal intervention for the health of the mother-baby diada – Maternological approach*, Live webinar: Pregnancy, childbirth, attachment. The impact of early development on the health of the child and adult , June 25, 2020

16. **Daniela Marincaş**, Simina Angelescu, *Healthy mothers, healthy babies- Supporting maternal emotional wellbeing and infant development*, International online Conference on Perinatal Health – Psychological, Social and Medical Approach, 25-26 September2020, Bucharest, Romania.

17 . **Daniela Marincaş,** Simina Angelescu, Maternology Seminars, Zoom platform of the Franco-Romanian Association Bebebienvenu, between February and December 2021.

18. **Daniela Marincaş**, Simina Angelescu, *Psychosomatics of the infant - maternalological approach*, National Conference of the Romanian Association for Pediatric Education in Family Medicine, online 15-18 April 2021.

19. **Daniela Marincaş**, Simina Angelescu, *Mother-Baby Healthy Relationship during Pandemic. A discussion on implications for infant development and maternal well-being*, Breastfeeding Barriers International Online Conference during the Covid pandemics, May 19-20, 2021.

20. Simina Angelescu, **Daniela Marincaş**, *"Blinded motherhood. Perinatal emotional disorder. Case study."* APPPAH 22nd International Online Congress , "The Science and Mystery of Pregnancy and Birth" November 19-21, 2021.

Research projects submitted

21. Swiss-Romanian cooperation program, Thematic fund for civil society participation, grant scheme for non-governmental organizations, application for funding for the project *"The health of the mother-child emotional relationship",* 2015, project manager.

22. Ambassade de France en Roumanie, Appel à projets «Renforcement de la société civile roumaine en appui aux associations de personnes vulnérables ou leur entourage», with the project *"Mobilisation collective pour la prévention des problèmes liés à la Dépression Postpartum (DPP) par la création de guides et de brochures pour les professionnels et pour le grand public",* 2017, project manager.

23. Electrica S.A., call for projects "Electrica puts Romania in a different light", with the project *"Setting up an interdisciplinary network for early intervention on perinatal emotional disorders"* application ID: 8520f1d082c309dc8eed3e4d220ee684, 2019, project manager.

Courses for continuous training and crediting of scientific events for nurses through the partnership between the Franco-Romanian Bebebienvenu Association and the Order of Generalist Nurses midwives and Nurses in Romania (OAMGMAMR)

24. Courses accredited by OAMGMAMR and credited with 10 credits of continuing medical education (EMC) according to the addresses with the numbers 651/24.10.2017, 721/08.10.2018, 1047/11.11.2019.

25. The international conference with the theme *"Perinatal health - a psycho-socio-medical approach / Perinatal Health - Psychological, Social and Medical approach"* organized online between September 25-26, 2020, credited with 10 EMC points.
26. Accredited course on the national online course platform of OAMGMAMR, with the theme *"Introduction course in Maternology",* and credited with 10 EMC points according to the address no. 1 / 28.04.2021 https://emc.oamr.ro.

Other courses and certifications

27. ANC trainer certificate, 2013.
28. Project Manager Certificate, 2014.
29. Clinical Maternology Certificate, 2015.
30. Erasmus project participation certificate, First Touch Project, 2018.
31. Remote course, World Intellectual Property Organization Academy-Introduction to the patent cooperation treaty, 2019.
32. Certificat Journée d'Etude Maternologique, March 15, 2021, platforme Zoom.