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Interventions for Enhancing Parenting Quality in Early Infancy

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1. Introduction

Early infancy is the period of life in which the major biological and psychological bases of human development are built; therefore, it requires a unique social, economic and political commitment on the part of society [1,2]. In early infancy, family is primarily responsible for the daily care and promotion of the rights of children, with a shared responsibility of society and the states, as stipulated in the Convention on the Rights of the Child [3]. Therefore, parents, relatives or unrelated caregivers of children between ages zero and five years old are essential for promoting children's healthy development. These caregivers should be the focus of effective and useful interventions aimed at strengthening the affections and the quality of care that they provide to their children, supporting them through parenting challenges, and helping to create stimulating and safe home environments (World Conference on Education for All in Jomtien, Thailand [4], World Education Forum in Dakar, Senegal, [5])

In this chapter will be presented and discussed how the child socioemotional development is affected by the quality of current parents/caregivers-child relationships, considering the influence of developmental context on these relationships. Next, two distinct interventions created in two Latin American backgrounds will be presented as possible models to enhance the quality of mother/father/caregiver-infant interaction attending to contextual demands.

2. Parenting and context

Establishing a durable emotional relationship between parents and children, or between a caregiver and a child, is achieved through daily interactions that are frequent and reciprocal.

Therefore, interventions for this population should serve to strengthen the emotional and affective bonds between parents and children, improve the motivation of caregivers, and increase the frequency, power, and contingency of their responses [6,7]. Also, interventions should achieve successful mutual behavioral adaptation [8,9].

Successful mutual adaptation between caregivers and children will promote caregiver effectiveness as guides and models for their children; it also will facilitate a stable system in an enduring relationship, enabling and sustaining a child's potential development [9]. The term 'caregiver' applies to all persons responsible for child care during the first years of life; for example, parents, grandparents, aunts and uncles, fosters or any other person who performs that role in the life of the child [10]. The process of providing care for young children has been conceptualized in Attachment Theory, through the study of affective bonds established between a child and those closest to them, the primary caregiver or secondary person in the child's family and social environment. Caregiver availability, how appropriately they respond to the child's needs, environmental demands, and the quality of the situations in which interaction occurs are all factors conceptualized when assessing caregiver sensitivity [6].

Sensitivity involves appropriate caregiver self-control in conflicts that could emerge in the interaction with children, as well as negotiation skills to help resolve those situations [6]. That is, sensitivity implies a co-regulation of emotions that emerge in conflicts, and that must be modulated by the caregiver. Sensitive caregivers help children to modulate their behaviors, not only in positive moments, but also in times of stress [11,12].

Attachment is evident in a child's tendency to maintain proximity and contact with the person who gives them the greatest sense of security, feeling of distress on separation, and joy in reunion [13]. For Bowlby [10], attachment behavior is defined as "any form of behavior that results in a person attaining or maintaining proximity to some other clearly identified individual who is conceived of as better able to cope with the world. It is most obvious whenever the person is frightened, fatigued or sick, and is assuaged by comforting and caregiving" (p26–27). Consequently, attachment relationships give to the child a secure base from which to explore and learn about the physical and social world [14].

Attachment fulfills an important biological function; the care that parents show towards their offspring provides for security and survival in the environment in which they develop. The biological function of attachment, that guarantees the presence of this special affective bond between caregivers and children, is genetically predetermined and found in all individuals. However, this does not mean that attachment is equivalent to an instinct. For an attachment relationship to become established, it is required that the child experience continuous interactions with the caregiver [13,10]. One of the basic assumptions of Attachment Theory is that the quality of care provided by the adult caregiver is central for child's secure base behavior organization [15,16].

In this respect, the establishment of an attachment relationship is an interactive process involving both child and mother, or father, or other caregiver. An attachment relationship necessarily refers to the interaction that occurs between two, a dyad, and is possible that the child establish dyadic attachment relationships over many figures without missing their

emotional bond with their primary caregiver [10,15]. According to Sroufe and Waters [17] the dyad is a unit biologically based, but organized by the effect of culture. Thereby Attachment Theory considers the tendency to establish interpersonal relationships as inherent to human nature, present in newborns and continuing throughout life course. There is debate about whether the importance of the quality of care provided to children and their secure base behavior organization can be generalized to all cultures [18]. The care given to infants, specifically in current relationships, is strongly influenced by characteristics of the culture in which the dyad is involved. Different cultures may have different perspectives about the role of children in family. Thus, cultural values can guide education models that encourage autonomy, while others would value education models that promote interdependence [19]. For example, families of middle and high socioeconomic status, from Western countries, value the individuality and independence of their children, while families of lower socioeconomic status value closeness and dependency. These educational differences reflect different expectations for child development, as well as show a difference in beliefs about development itself, manifested in different interactive practices [20]. Consequently, parents react to the requests of their children according to their knowledge about child development, but also according to the characteristics that they want to promote in their child [21]. In Western societies (European and North American) there is, for example, a greater tendency to interact face-to-face, with the valuation of language addressed to the child, and the use of objects [19]. In African societies, the maternal speech to children is used for the first time around 12 months, and until then the baby is carried in mother's lap or on her back [19]. In Asian societies the interaction with the infants non-verbal, focusing instead on physical contact [19].

Regarding the distinct patterns of interaction found in various cultures, van Ijzendoorn and Kroonenberg [22] conducted a study in 32 countries of differing cultural histories (European, Latin American and Asian). It was found that despite all the different interactive practices observed, all of them were aimed at providing care and comfort to the infant. Researchers observed behaviors identified as contingent and syntonic. These findings confirm Bowlby's principles [15], that is, whatever the cultural origin, infants have a need for protection and their attention-getting methods are easily identified by adults.

However, care and educational strategies provided to children by caregivers, will be affected by the characteristics and demands of the environment in which they are inserted [23-25]. From this perspective, these authors describe development as a continuous process established over time.

In *The Bioecological Theory of Human Development* (BTHD [24]) Bronfenbrenner conceptualizes the models as P(person), P(process), C(context), and T(time). A person is defined as an element in constant evolution, which influences and is influenced by the environment in which they are inserted. Context consists of five distinct aspects: microsystem, mesosystem, exosystem, macrosystem, and chronosystem. The latter refers to the dimension of time spent immersed in an environment, the person and their relationships, so to speak, the sociohistorical conditions of the time in which the person lives [26].

The microsystem is characterized as the environment in which a child has established interactive, face-to-face relationships, and where proximal processes occur (home and school,

for example). The mesosystem is composed of these microsystems interacting among them. The exosystem context consists of those spaces not frequented by the child directly, but that indirectly influence their development (the parents' place of work and the rules of operation at their school, for example). The macrosystem consists of the society's prevailing cultural, norms, laws, and values.

The element of time is also organized into three distinct aspects and is described as having influence over the entire developmental process, since interactions occur at specific times, the microtime. Mesotime is a set of microtimes, while macrotime is the historic whole of time in which relations are forged. By definition then, macrotime bears a significant influence on microtime [25].

According to Bronfenbrenner [24], the quality of established relationships, constituents of the proximal processes, are the "engines of development". Nevertheless, Bronfenbrenner emphasizes that these relationships are influenced by the context in which they occur, particularly in the microsystem, in which relationships are established face-to-face. However, the microsystem is itself influenced by other systems (meso, exo, and macro) that affect the quality of these relationships.

Olds [27] stated that the form of baby care and how their needs are identified and met influences the development context which surrounds it, as does the childhood context in which the parents developed. It appears that mothers/fathers that developed in hostile environments are more likely to adopt aggressive behavior and take minimal care for their children. Similarly, mothers who had poor relationships with their parents show less ability to bond with their own children and therefore have less maternal attitudes considered appropriate [28,27]. It is necessary to consider that the skills of caring for children result from a developmental process, namely the parents' own childhood [29].

Concerns about the patterns of attachment formed with parents and the relationships that are formed during the rest of life, and among various generations of the same family, and what the underlying processes are, is a topic of research interest. The process by which, intentional or otherwise, an earlier generations psychologically influences the attitudes and parenting behaviors of the next generation, has been called the Model of Intergenerational Transmission of Parenting [30]. This model of transmission has been studied in its three components and their relationships: adult caregivers' mental representation of attachment, parenting practices, and child attachment styles [31].

Studies consistently show a substantial effect of intergenerational transmission of parenting styles within the theory of adult attachment relationships. These findings suggest that the experiences parents had with their own parents' sensitivity, their attentiveness, rejection or ambivalence, generates an internal representation of the grandparents as responsive or unresponsive. The hypothesis behind this idea is that the internal representation of attachment influences the degree to which parents will be responsiveness to their own children [10,32].

According to van IJzendoorn [30], from the hypothesis of internal representation, it would be expected that parents who experienced a high degree of responsiveness/sensitivity in childhood would be more open to the signals and needs of their own children than parents who

were rejected or treated with ambivalence. However, parents can restructure their internal representation on the basis of experiencing significant and secure attachments after childhood. van IJzendoorn states that the internal representation of past experiences can be considered the results of a complex process of their personal history and memories, in which later experiences influence the perception of past events. In addition, he also notes that parenting includes not only the behavior of children taking-care, but also the attitudes towards child-rearing that can influence their early development [30].

In this internal model of relationships, the child constructs an image of himself, and of the established relationship, as well as how these relationships are trusted and secure. Therefore, the sensitivity of the caregiver works as a precursor to formation of affectional bonds [16].

3. Parenting and vulnerability

Preventive interventions, especially those directed to early childhood, should be tested under objective, scientific criteria for their impact on the development of social capital of communities and for their relevancy as a strategy to overcome poverty in the most vulnerable populations. Currently, very little is known about the early development of children living in vulnerable conditions, since the proportion of childhood development research conducted within this population is minimal. Bornstein and Putnick [33] argue that, despite the consensus surrounding the importance of early childhood years has on development throughout one's life, and the influence of early development environments, the settings and conditions of care surrounding children, there is still a surprisingly scarce amount of data regarding it. According to the authors, at the population level (for example, populations in national territories or locales) there is very little information about the diversity of experiences and conditions that benefit or hinder the wellbeing of children. For Bornstein and Putnick, this lack of information is especially noticeable in developing countries.

Some factors have been described as influencing the quality of the relationships between mother, father, and child. Poverty, for example, can lead to friction in relational quality [34]. The socioeconomic context is a characteristic of the microsystem that tends to be indicated as relevant in the interactions established with the child over the course of their development, modulating the caregiver-child relationships (proximal process) [29,35,36]. In studies made to establish an association between maternal sensitivity and infant attachment security in samples taken from high risk, low socioeconomic populations, specifically in a meta-analysis addressed by Wolff and van IJzendoorn [14], were found significantly lower associations between maternal sensitivity and infant attachment security compared to samples taken from middle and higher socioeconomic strata. Subsequent studies conducted by Diener, Nievar and Wright [37] corroborate the findings of the meta-analysis. Also, their results showed that the dyads with more positive resources in their families showed, among the three groups, the highest correlations between maternal sensitivity and attachment security. However, data from a study realized in Colombia by Posada and collaborators [38] comparing two samples, one middle class and one in extreme

poverty, showed a significant and robust association between these two variables. Nevertheless, in this study the mean scores for maternal sensitivity and attachment security were significantly lower than those from the socioeconomically advantaged. One would assume then that the stressful daily life experienced by families living in poverty might negatively affect the quality of maternal sensitivity and attachment security, as well as the relationship between these two factors; for example, socioeconomic status tends to relate to knowledge about child development, as well as expectations for the infant [36]. Moreover, the interactive pattern tends to be distinct according to socioeconomic level [29,35,39].

Mothers of higher socioeconomic status tend to talk more with their infants when trying to calm them down. Likewise, they tend to hold their children more often and express more affection towards them, compared to mothers of lower socioeconomic status [39]. In this sense, it is considered that the socioeconomic conditions of the family influence the quality of education and care the child will receive, as well as the type of resources and experiences that the child will have access to [40].

Furthermore, Belsky et al. [29] found that stressors of context, namely single parenthood and marital conflict, may lead to parenting practices considered more punitive. In these situations, there were observed more behaviors of rejection and inconsistency in the care of the infant. These behaviors, in turn, would instill in children a sense of defenselessness and unpredictability, which would lead to a model of internalization considered insecure [16,15,41].

Since parents with higher sensitivity are better at identifying their child's needs and responding appropriately, they are less likely to develop behaviors of neglect or maltreatment [27]. In other words, parents tend to resort to practices considered more punitive in environments marked by the presence of stressful events, which in turn can lead to a child's sense of self-deprecation. In these cases, children tend to view themselves as little worthy of love, while others would regard them as unreliable and non-protective. As a result, their interpersonal relationships would be assessed as unreliable and transient [29].

It is from this perspective that Belsky et al. [29] characterize the practice of infants' caregiving as arising from contextual demands. The authors explained that parents' educational strategies will be influenced by their assessment of reality. For example, if parents rated their life as difficult, violent, unstable, it is natural that they would want to educate their children in light of this reality, making them better suited to deal with these qualities. Likewise, attitudes like warmth and safety can be considered counterproductive and unhelpful to a child's development in an environment considered tough, hostile, and in which a person constantly needs to defend themselves. The way parents raise their children and the type of care they offer are strongly influenced by their assessment of the challenges of their context [29,40].

Nevertheless, it is necessary to emphasize that no context of development is considered better than another, but rather that they provide for distinct experiences. This is a view shared by Keller, Lohaus, Volker, Cappenberg and Chasiottis [42]. These authors postulate that care consist of a set of behaviors that have, as their main objective, to meet contextual demands. Importantly, the different educational strategies adopted in each context aim to provide the best possible development to the child, taking into account the characteristics of the environ-

ment in which they operate [40]. However, there are contexts that, for their peculiarities, are considered the most challenging for the parenting task.

4. Enhancing parenting

The development of parenting interventions improve the quality of the first emotional experiences, present in the infant-mother interactions [28], and stimulate protective factors of child and adolescent development in at-risk social contexts. Interventions aimed family caregivers are important not only to promote the healthy development of boys and girls, but also to prevent violence within the home and to help build equitable and inclusive societies, as well as to reduce abusive and neglectful parental behaviors that continue to affect many children around the world [4,5]. These elements should serve as a guide in the implementation of public and private interventions.

Bronfenbrenner, in his model of bioecological development, considers that the emotional bonding process can be facilitated through intervention programs which involve caregivers as primary intervention agents, and where strong one-on-one relationships are considered essential for the development of young children [8]. The process of emotional bonding can be understood within the Bronfenbrenner model, as a proximal process. That is, as those relationships that occurs in the immediate surroundings of daily care.

According to the initial hypothesis proposed by Bronfenbrenner [23], the proximal processes, such as development contexts characterized by interpersonal structures, may produce two types of effects on the individual involved in this, taking into account the quality of these processes: 1) competence or ability to self-manage skillfully behavior within a domain of development; or 2) dysfunction, difficulty in maintain control over development [26]. Bronfenbrenner always included within the assumptions of the theoretical model, the need of research evidence that would allow public interventions or programs to promote healthy human competency. When designing interventions for early childhood, Bronfenbrenner suggested that these should influence the microsystem, which is in everyday interactions in order to affect the core of parental relationships (i.e., the family microsystem) For Bronfenbrenner [23], the microsystem is "a pattern of activities, social roles and interpersonal face-to-face relationships experienced by developing persons in a scenario with physical, social and symbolic individuals that invite, permit or inhibit, and that progressively engage them in more complex and active interaction within the immediate environment " (p1645). That is to say, it is within the microsystem where trigger processes occur, inhibiting or favoring human development, the proximal processes.

To achieve developmental impact through early interventions, Bronfenbrenner [8] emphasizes that during the first three years of life, the main objective of human development is to establish a lasting emotional relationship between parents and children, and that these relationships are built through frequent reciprocal interactions. He also points out that the impact on the development of a primary dyad increases in direct relation to the reciprocity of mutual positive feelings, a gradual shift in the balance of powers, and a progressive autonomy for the child

[26]. The author said that the effect of interventions at these ages should be to strengthen the bond between parents and children, improve the motivation of parents for upbringing, and to increase the frequency, power and contingency responses of the parents to their children to get them to give mutual behavioral adaptation. Also considers that the emotional bonding process is likely to be facilitated through intervention programs. In these programs, parents must be involved as primary intervention agents, and should seek to strengthen the one-to-one time spent with their child, which is essential for the development of young children [8].

Some interventions based on Attachment Theory, attempting to ensure proper child development, aim to raise awareness of caregivers, since their ability to identify signals from young children, interpret them adequately and promptly respond to them, are factors that facilitate the establishment of an attachment relationship that is mutually satisfactory and a powerful variable to determine the safety of the child [43]. In their meta-analytic study of the effects of early interventions on sensitivity and attachment, Bakermans-Kranenburg, van Ijzendoorn and Juffer [44] found that brief interventions, focused exclusively on sensitivity as behavior, are most successful in improving caregivers' sensitivity in daily care of children, as well as infant attachment security.

Infant attachment security largely determines the quality of a child's future social relationships [10,15,16,45]. For example, it has been established that children with high levels of attachment security in early childhood, are more flexible and adaptable to changes in the environment at school age, and have more positive expectations in interactions with their peers. These children are described by others as cooperative, popular and resourceful, and are characterized as exhibiting reciprocity in social interaction, as well as verbal and behavioral fluency. Also, in interactions with adults, they are relaxed, friendly and can more easily engage in emotional intimacy [46-49]. In addition, children who show secure attachment can better regulate negative emotions and construct ways to cope with stress [50-52]. They also have a better self concept, in terms of how they see themselves and their capabilities [53,54].

The ideal duration of home intervention programs is a subject of discussion [44,55]. According with Olds [27], interventions should be initiated even during pregnancy and continue for at least the first two years of a child's life. Despite the lack of consensus on the duration of the intervention, it is unanimous that home interventions should occur on a regular time basis. The intervals between visits should be short, to allow the formation of a trustful relationship between coaches and families [27,44,55].

The most effective interventions do not always require a large number of sessions with families, and need not begin before birth or even during the first months a child's life. By contrast, in the aforementioned meta-analysis [44] researchers found that fewer sessions and intervention, beginning six months or more after birth, are the most effective. Taking into account the entire set of interventions studied, regardless of the presence or absence of multiple problems in families, such as poverty, teen pregnancy and prematurity, fewer sessions were more effective. Only cases of interventions with clinical samples (psychopathology or mental illness) showed higher levels of effectiveness, as well as interventions in which both parents participated, as compared with those in which only mothers participated. Other authors suggest that even modest interventions aimed at influencing the responsive performance of mothers in caring

for their children, such as informative videos about best practices to manage and promote affective interaction with children, can improve a caregiver's sensitive response [56].

In regards to the relationship between sensitivity and infant attachment behavior, it was found that when an intervention is highly successful in increasing sensitivity, there appears a positive parallel change in infant attachment security. It is also noted that interventions are preferable when they have a clear focus, directed exclusively on the sensitive behavior of caregivers with a modest number of sessions [44].

On the evaluation of care behavior in caregivers of younger children, Posada, Carbonell, Alzate and Plata [57] have drawn attention to the importance of knowing not only whether scores on sensitivity or attachment security of children, evaluated with standardized instruments, are or are not similar from one culture to another, but also whether there are any contextual and cultural particularities in sensitive care quality, and above all, what these particularities are. The authors state that only using assessment tools developed with samples of white and middle-class in Western industrialized countries, fails to recognize the specific cultural manifestations of early intervention, and therefore, it is necessary to use mixed methodologies which would reveal such manifestations, especially if the results are to be useful for local intervention. However, there are several standard techniques for assessing the sensitivity of caregivers which are based on naturalistic observation and therefore are ecologically valid [23]. Among the naturalistic techniques implemented most in clinical research and early childhood are: The Home Observation for Measurement of the Environment - HOME [58], The Nursing Child Assessment Teaching Scale - NCATS [59] and the Maternal Behavior Q-Sort [7].

Taking the time to consider the ecological validity of the measurements on the quality of child care is important, since the experiences, environments and opportunities that adults provide children determine their strengths and vulnerabilities. Children that spend early childhood living in violent, emotionally or cognitively deprived situations, or who are subjected to experiences of abuse or neglect, face compromised brain development and restricted developmental potential [60-62]. If, however, a child's world is safe, caring and full of social, emotional and cognitive opportunities, their developmental potential will unfold [9,63]. According to De Antoni and Koller [64], through the ecological approach of development, one gains a contextualized view of environmental and situational factors that may have some influence on the development. For these authors, it is necessary that the development of the person be understood from observation in the natural environment and from real situations that affect them, their resources, and their own interpretation of reality.

5. A home based intervention in the state of Rio Grande do Sul, Brazil

The development of home visiting programs and parental training are based on the premise that intervention during the early years of a child's life presents a unique opportunity to promote their socio-cognitive development. From this perspective, programs whose main objective is to qualify positive parenting practices, or provide resources for parents towards the care of their children and provide richer experiences for the healthy development have

been developed [27]. The home intervention programs are traditionally targeted to "at-risk populations" [65]. Risk is defined by the failure and dropping out of school, behavior problems, unemployment, poverty, and teenage pregnancy/motherhood. Data from Canada show that the poverty rate for single parents is 57.1%. However this figure rises to 93.3% in cases of teenage mothers [66]. Furthermore, the authors show that parents in stressful environments more often display a non-contingent interactive style.

The program Best Early Childhood (*Primeira Infância Melhor*, PIM) has been integrating government policy from the state of Rio Grande do Sul, Brazil, since 2003. PIM is a socio-educational program involving families and their children, from pregnancy until age six, for those who live in vulnerable background. It is a program that aims to offer essential information and positive experiences to help families to improve the care of their children. This is particularly important, since the families served by PIM are characterized as living in a risky situation, which would hinder their access to adequate information regarding parenting. In this way, PIM aims to educate the caregivers to improve quality interactions, as well as provide them adequate information about socioemotional child development. Therefore, the family is considered a fundamental factor in the development of knowledge and the implementation of new activities with their children in order to minimize risks associated with the conditions of poverty, particularly in the lack of stimulation and neglect that many children face [1].

The PIM program is designed to stimulate an infants' overall development and to promote quality interactions in their family, particularly between children and parent(s) [1]. PIM seeks to attend to the needs of children from pregnancy until the age six, as was described by Brazelton and Greenspan [67]: establishing an stable and continuous relationships; providing physical protection and security; sharing access to experiences appropriate to their developmental level; establishing rules, boundaries, and organized expectations. The program's methodology operates under the assumption that if children are promoted in their potential with their parents/caregivers, they can achieve harmonious and healthy integral development. It is worth noting that the family, namely the mother/caregiver is involved in this process. They are guided through specific recreational activities, aimed to promote the socioemotional skills of children, as well as the quality of the relationship. Moreover, this intervention considers the cultural context of each family, their needs and interests through weekly visits conducted in the homes of families; thus the intervention seeks for the familiar involvement in child development.

The interventions offered by PIM are divided into two main groups: (1) during the pregnancy and up to the age of three. These interventions occur weekly in the family residence; and (2) between three and six, made as a group in the local community. However, both modalities have the same aims, as well as both of them involved the caregiver in the activity with the infant. Both intervention models (home basis and community basis) aimed to promote a healthy socioemotional development of the infant. The families living in at-risk context in Rio Grande do Sul areas, are invited to participate in the program. In 2013, 74% of those families were enrolled in PIM (<http://www.pim.saude.rs.gov.br>). Considering the infant's age, they are enrolled in home basis intervention (during pregnancy and until the infant is 3 years old) or group (between 3 and 6 years old). Both home-basis and group interventions have the same

frequency and structure: they happen in a regular manner, involving the infant caregiver in order to promote an adequate socioemotional development, as well as to improve the quality of caregiver-infant interaction. Each week has a targeted intervention, stimulating the infant development by recreational activities. The monitor of the program goes each week to the family house and proposes an activity considering the previous diagnosis and needs of that family. Each activity has a specific aim, involving both mother/caregiver and child. It is explained the goals of that activity, as well as how the mother/caregiver can repeat it during the week.

The weekly meetings last approximately 60 minutes and consist of three steps: (1) initial moments, in which previous activities are resumed, and the activities of the day are introduced; (2) development of the activity of the day; and (3) evaluation of the activity of the day and subsequent assignments, with directions of activities that must be performed by the family during the following week. The activities made with family are structured, taking the initial diagnosis as its starting point. The diagnosis characterizes the way to identify the most important problems in each case, constituting a systematic process of decision making, enabling the implementation of strategic actions geared for each family. For the formulation of the diagnosis, it is possible to identify family problems, how they were addressed and later resolved. In the formulation of these diagnoses, interviews are conducted with the families and observations made. The interview consists of open and closed questions which systematize information about: the neighborhood/community in which the family is placed (the neighborhood infrastructure, services, etc.); the family (household composition, income, etc.); as well as the mother and the child. The filling out of notes is done at the time a new element enters into the program and is updated throughout the interventions. Information about the family is also recorded during the intervention, including aspects related to relational quality between parent and infant, and the child's developmental acquisitions. This program is described as an important resource for child development. In the state of Rio Grande do Sul, until 2013, 56.760 children from low socioeconomic status took part in the program (see for detailed information http://www.pim.saude.rs.gov.br/a_PIM/php/pagina-IndicadoresSucessoPim.php).

6. Parenting group intervention for injury prevention in the city of Bogotá, Colombia

Safe Environments Module is part of a set of public social policy performed in family environments in the city of Bogotá, Colombia. With this set of interventions, early childhood education is addressed to parents. It teaches parents to promote positive parenting, breastfeeding, healthy child development, play, child participation, and the rights of all children [68]. Family scope intervention is a process of training families with young children which is aimed at strengthening family activities that foster improvements in the home to promote child development. The long-term goal of these interventions is to transform cultural patterns of child abuse, to help improve the health of young children through timely medical and

nutritional care, and to promote social mobilization and development to open more opportunities for all children in the city [69].

The design of the Safe Environments Module intervention [70] was based on literature about the prevention of domestic accidents, theories for intervention in early childhood, Attachment Theory, and the Bioecological Theory of Human Development. The intervention was developed by the agency responsible for the implementation of the social policy in the city (District Department of Social Integration - SDIS) in cooperation with private entities.

The broad policy framework for the Safe Environments Module intervention arose from the Convention on the Rights of the Child [3] and the Colombian Constitution of 1991 [71]. The local context for the intervention in the city of Bogotá is the Social Policy for the Quality of Life of Children and Adolescents 2004-2008, updated for the period 2008-2011 [69].

This policy excelled within the country by affirming that it is possible to build a society that is tolerant and respectful of diversity and differences, to the extent that the conditions of the places (homes and neighborhoods) where children live and grow in the city become adequate and safe. The policies in Bogotá also stress the importance of intervening in the relationships established between children, families, and other developmental aspects of the child so that interactions would be more affective and respectful. The policy states a set of intolerable situations, for example: "For a city that claims to be modern and humane, it is intolerable that children and adolescents suffer or die from preventable causes such as perinatal diseases, infections, and accidents" and "It is intolerable that children and adolescents are so alone" ([69] p11).

According to the District Diagnosis of Childhood and Adolescence [68], "the third leading cause of violent death in children and adolescents aged 0-17 years are accidents different to those caused by traffic and children in early childhood have been most affected by this type of death during the period 2002-2011 "(p111). In Bogotá, in 2007, when a report was made on the cause of accidental deaths of children in the city, it was observed that the 9099 accident cases recorded, with 3580 of those involving children under 10 years old [72]. These figures are shocking considering not only the age of the victims, but also in recognizing that all accidents were preventable [73]. However such these figures remain in Bogotá, the city still has reduced systematized information of these accidents in childhood, as occurs in the rest of the world [73,74].

According to Peden et al. [73], the preventive actions that have been found effective in the intervention against domestic accidents can be grouped into four categories:

1. **Safety devices:** there are passive interventions that seek to promote the use of safety devices. It can lead to a rapid decline in accident rates and in fact it is known that a decrease in these rates, in turn increases the confidence of the people in the use of such devices. Examples of this type of preventive actions are the use of helmets for cyclists, installing railings on stairs and windows, safety caps on drugs to secure them from children, and the installation of smoke detectors.

2. Education, training and behavioral change: interventions in this category have the common goal of encouraging behavioral change through different teaching strategies, for example campaigns for pedestrians to use crosswalks. Such actions may extend beyond the primary caregivers, including health professionals, educators (beginning in kindergarten), among others.
3. Home visits: the approach to the immediate context of children's lives, therefore the ability to impact the real context in which they are growing up. This type of actions is the most effective intervention to a wide range of preventable problems in families, thus such actions usually go beyond the prevention of accidents, even preventing child abuse and increasing childhood immunization rates.
4. Community actions: such actions lead us to believe in interventions with long-term incidence within specific communities. The hallmark of this type of actions is that generally they are based on the initiative of the social group.

With this background, in Bogotá was tested the injury prevention program Safe Environments Module [70], an intervention for domestic accidental injuries prevention addressed to primary family caregivers. The study performed is described below.

The caregivers were trained to modify their home environment with their children in mind, improving their home safety settings and adjusting their own behaviors to prevent unintentional injuries. Intervention was implemented following a detailed protocol. The intervention consists of four- two hours sessions, one per week (see Appendix A).

The impact assessment was divided in two studies. The aim of the first study, as a pilot study, was to determine how protocols and their procedures were applied by data collectors. Opportunities and barriers when applying intervention protocols were analyzed. The findings from this evaluation process were used to improve the protocols and therefore guarantee methodological quality of study 2 regarding intervention effects. A group of 16 volunteer primary family caregivers participated (age range 23-55 years old; $M = 33.9$, $SD = 8.7$). In study two, an intervention group was formed of 29 caregivers selected conveniently from a public kindergarten in the city of Bogotá, Colombia (27 mothers, 1 grandmother and 1 aunt) (ages ranging from 19-74 years old; $M = 31.7$, $SD = 10.8$), and a comparison group with 18 caregivers (14 mothers, 1 grandmother, 1 aunt, 1 sister and 1 stepmother) (ages ranging from 20-58 years old; $M = 28.6$, $SD = 8.7$). Each caregiver was visited twice by three observers, one focusing on injury risk and home safety, and the other two on caregiving quality [75].

Naturalistic measures were used to assess intervention effects on the following variables: early infancy risks and home injury antecedents, the quality of social and physical immediate environment that included housing quality and adult-child social and cognitive interaction at home, and caregiver sensitivity behaviors, correspondingly: Injury Home Risk Scale [76]; Injury Home Antecedents [76]; optional modules of Multiple Indicator Cluster Surveys, MICS3 [77]; and Maternal Behavior Q-sort [7].

Comparing the results between groups with nonparametric statistics showed that groups were similar in social, demographics and research variables. The results displayed a significant

positive association between age of children and caregivers' report history of home injury ($r(47) = .33, p < .05$); and an inverse association between level of accident risk and level of housing quality ($r(47) = -.29, p < .05$) (*spearman* correlations based on pre-test measurements). It was found that leaving children alone at home declined in frequency after the intervention ($Z = -.20, p < .05$). Also, it was established that intervention increases the number of potential social interactions for children at home ($Z = .22, p < .05$) [75].

No significant differences in domestic injury risk were found between the comparison group and the intervention group; however, the results suggested that domestic injury risk was a highly determined variable related to socioeconomic conditions, such problems with housing facilities [78,79]. These findings support an urgent need to improve housing and environment quality of low income contexts and also the idea that short interventions focusing in caregiver behavior could be effective in domestic accidental injuries prevention in early infancy.

In the case of the city of Bogotá, scientists working in the field of human development are committed with political decisions on early childhood interventions, and their main argue is that interventions themselves most to be based on evidence. It is well known that tested interventions can guarantee that public funds are well spent and produce the desired effect. Scientist in this contexts have begun to include in their academic responsibilities reflections and disclosures on the implications of this type of research, in order to help bridge the gap between academic knowledge, current quality of home care, and children's developmental needs [79-82].

7. Conclusions

Preventive interventions in early childhood requires especial attention because in this period of life is when most important neurobiological growth occurs, and it happens faster than any other period of life. Biological structures makes possible psychological and social development, and at the same time, positive social interactions in early infancy promotes the establishment of healty biological basis that would impact all life course. Interventions for children between ages zero and five years old could impact on the development of social capital of communities, therefore it is relevant as a strategy to overcome poverty [83]. In the most vulnerable populations, as well as in prototypical communities, interventions should be build under objective and scientific criteria in order to be able to explain the changes that occurs due to the intervention, and then be replicable [78].

Two main theories were presented as basis of early childhood interventions, the *Bioecological Theory of Human Development* (BTHD [24]) of Bronfenbrenner and the *Attachment Theory* of Bowlby and Ainsworth [6,13,10]. Both theories emphasize in the importance of specific cultural setting on the performance of parenthood. The role of the parents or caregivers in general, on the promotion of children healthy development was explained focusing on child socioemotional development. According to these theories, the emotional bond between primary caregivers and children was proposed as a core of the early intervention. In this chapter were

presented two models of interventions that have taken into account the main principles of both theories.

Even though the two presented interventions have distinct patterns, both of them aimed to enhance the infant development, considering the quality of relationship between child and mother/caregiver as a major factor. Besides, both of them conceptualize the importance of contextual variables, like the infant's home environment. That is way the first presented intervention (PIM) occurs in a home-basis or in a community center. The second one is targeted to prevention and aimed to reduce the risks of home environment in child development. It is worth stressing that the caregivers are enrolled in both interventions, because they are considered as main elements to the regulation of infant needs, promoting adjusted outcomes, healthy development and child's adaptation.

Moreover, these interventions addressed to contextual demands looking for the best socio-emotional development. These aspects correspond to BTHD principles, in which the change in microsystem needs to be operated by their elements [26]. Each intervention aimed to promote changes in children environment. However, these changes involved the person included in this environment. In agreement with PPCT model [24], these interventions conceptualize the person in constant evolution affecting and affected by the context where they live. Every intervention intends to promote change in contextual background of the infant, besides seeks to promote change in the quality of their relationship, evaluating it as "the secure base" for the further outcomes. Then, it is attempted to ensure an adequate infant development, helping the caregivers to identify and correctly respond the signals and needs of the child. In doing that, a positive relationship is built, mutually satisfactory and, importantly, determining the safety of the child [43,44]. Another important factor of the presented interventions is the involvement of caregivers and their sensitivity/responsivity to the challenges of the environment where they operate, minimizing the possible threats of it [40]. Particularly, the interventions are looking to the possible challenges presented in mother/caregiver-infant interaction in order to improve the motivation and knowledge of caregivers about child care quality, and increase the frequency, power, and contingency of their responses [6, 7].

Considering that the main core of each intervention is the opportunity of promoting positive parenting, enhancing their skills, and attending to their particular needs and concerns, it is possible to establish that Bronfenbrenner's guidelines for interventions are useful to promote changes in the microsystem as well as in proximal processes in Latin American contexts. In general, the basis of each intervention presented was improving the ability to self-manage caregiving behavior. Therefore these kinds of interventions are relevant, considering the data revealing that children whose caregivers had more sensitive behaviors presented less developmental injuries [14]. As sentenced by Sroufe and Waters [17] the dyad is a unit biologically based, but organized by the effect of culture, so in the Colombian and Brazilian interventions the fact that they focused on mutual adaptation between caregivers and infants, exemplify how those actions help to build an stable system of interactions that enable the children potential of development in their own context.

Appendix A

Resource Summary, Contents and Short-Term Results of the Intervention Module Safe Environments

Resources	Sessions and Activities	Short-term results
<ul style="list-style-type: none"> -A group of participants in lower socioeconomic status, caregivers of children from birth to age five years. -Trainers, technicians trained in Module Safe Environments (rate not exceeding 1 trainer for 10 participants) -Logistical coordination of activities. 	<p>1. <i>Warm and affectionate meeting:</i> Modeling the needs of children, differences between the ways of expressing those needs, identifying conflicts between caregivers and the needs of children.</p> <p>2. <i>I grow-up safe:</i> In a matrix chart, according to four basic areas of development:</p> <ul style="list-style-type: none"> -Identification of the child's key skills -Identify the accident risks for children according to age. -Associated preventive measures. <p>3. <i>My home is a safe place:</i> Making a plan of the participants' house where they identify safe areas and dangerous areas for young children.</p> <p>4. <i>My city is a safe place:</i> Analysis (accidents, causes, consequences and prevention of five cases that exemplify different types of common domestic accidents in the city.)</p>	<p>Recognitions of the signals and the needs of the child.</p> <p>Perception of the child as an active subject and different from the adult.</p> <p>Recognition of the child's developmental processes, both its scope and its limitations, and consistent environmental adjustment.</p> <p>Alert to risks in the environment and eliminate or reduce those risks.</p> <p>Protection of child development.</p>

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