

Responsive parenting: interventions and outcomes

Neir Eshel,^a Bernadette Daelmans,^b Meena Cabral de Mello,^b & Jose Martines^b

Abstract In addition to food, sanitation and access to health facilities children require adequate care at home for survival and optimal development. Responsiveness, a mother's/caregiver's prompt, contingent and appropriate interaction with the child, is a vital parenting tool with wide-ranging benefits for the child, from better cognitive and psychosocial development to protection from disease and mortality. We examined two facets of responsive parenting — its role in child health and development and the effectiveness of interventions to enhance it — by conducting a systematic review of literature from both developed and developing countries. Our results revealed that interventions are effective in enhancing maternal responsiveness, resulting in better child health and development, especially for the neediest populations. Since these interventions were feasible even in poor settings, they have great potential in helping us achieve the Millennium Development Goals. We suggest that responsiveness interventions be integrated into child survival strategies.

Bulletin of the World Health Organization 2006;84:992-999.

Voir page 997 le résumé en français. En la página 998 figura un resumen en español.

يمكن الاطلاع على الملخص بالعربية في صفحة 998.

Introduction

With only a decade left to achieve the Millennium Development Goals, the status of the world's children remains grim. Every year, 10.6 million children die before reaching their fifth birthday; of these four million die within 28 days of birth. The vast majority of these deaths occur in the developing world due to poor health and development, and an estimated six million deaths can be averted with universal coverage of available health interventions.¹

While children need food, sanitation and access to health services to survive and develop optimally, a warm and affectionate relationship with an adult caregiver who is responsive to the child's needs is equally important.² Such a relationship strongly influences the child's health and development, ensuring survival as well as physical, neurophysiological and psychological health.²⁻⁴

One of the key features of healthy caregiving behaviour is responsiveness. It means parenting that is prompt, contingent on the child's behaviour and appropriate to a child's needs and developmental state.⁵ Responsiveness can be of various types, depending on which

child behaviour the caregiver — most often the mother — is responding to: a sign of illness, a verbal overture, a facial expression or an exploratory initiative. In each case, however, the mother's actions are child-initiated and directed.

Responsiveness is most often conceptualized as a three-step process.^{4,6} (1) Observation: The caregiver (usually the mother) observes the child's cues, such as movements and vocalizations. (2) Interpretation: The caregiver accurately interprets these signals, e.g. realizing that an irritable infant is tired and needs rest, or is showing signs of illness. (3) Action: The caregiver acts swiftly, consistently and efficiently to meet the child's needs.

To measure responsive behaviour, researchers observe the child and mother in their natural environment and note what proportion of the child's cues bring about a prompt, contingent and appropriate response.⁵ A commonly used inventory is the Home Observation for Measurement of the Environment, in which the interviewer observes the child at home.⁷

We aimed to review the benefits of responsive parenting on physical, mental

and social wellbeing of children, as well as the efficacy of interventions directed at enhancing maternal responsiveness.

Methods

We conducted a systematic review of the literature for the role of responsive parenting in child health and development and the effectiveness of interventions used to enhance it. English-language articles were searched in the following databases: Medline (PubMed), WHO-LIS (the WHO Library database), Cochrane Review, the World Bank, the Latin American and Caribbean Center on Health Sciences Information (LILACS), and KoreaMed (Table 1). More than 200 papers (reviews and experimental studies) and book chapters were consulted, with an emphasis on recent articles that focused on responsiveness. We made a concerted effort to include articles from developing countries, but relaxed the selection criteria as most of the studies on responsiveness were from developed countries.

We chose 50 articles that were representative examples of articles in each section (correlative studies and interventions), with priority given to randomized

^a Department of Molecular Biology, Princeton University, New Jersey, USA.

^b Department of Child and Adolescent Health and Development, World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland. Correspondence to Dr Cabral de Mello (email: cabraldemello@who.int).

Ref. No. 06-030163

(Submitted: 17 January 2006 – Final revised version received: 30 June 2006 – Accepted: 24 July 2006)

controlled trials. The studies we reviewed had sufficient detail to classify them as interventions or correlational studies and were focused on responsive care. The selected articles were subdivided by location (developed or developing country) and domain of responsiveness (correlative study of outcomes or experimental intervention). If the study was correlative, it was further divided by type of outcome: psychosocial or physical. If it was an intervention study, it was divided into home visiting or comprehensive. To aid in analysis, all cited intervention studies were summarized in a tabular format that included authors, publishing year, study site, intervention type, outcome measures and outcome.

Results

Maternal responsiveness improves child health and development

A large corpus of research has linked maternal responsiveness to improved child health and development, in both the immediate and long term, since the first path-breaking works.^{8,9}

Developed countries

Our analysis showed that in developed countries, maternal responsiveness was most often associated with language, cognitive and psychosocial development. For example, responsiveness contributed uniquely to language acquisition, even after considering the mother's expressiveness and other confounds.¹⁰ Maternal responsiveness in early childhood was associated with social competence and fewer behavioural problems at three years;¹¹ increased intelligence quotient (IQ) and cognitive growth at four-and-a-half years;¹² school achievement at seven years;⁷ as well as higher IQ and self-esteem, and fewer behavioural and emotional problems at age 12.¹³ Many of these studies focused on low-birth-weight infants¹⁴ or other at-risk populations,¹⁵ and found that maternal responsiveness had a protective effect on health and development.

Conversely, a lack of maternal responsiveness was often associated with behavioural problems and delayed cognitive development.⁴ In a sample of high-risk Chicago youth, a lack of maternal responsiveness during infancy predicted disruptive behaviour at 10 years.¹⁶ In this study, 26% of children whose mothers scored in the lowest

quartile of responsiveness during infancy developed a disruptive behaviour disorder compared to 16% of children of moderately responsive mothers, and no children of highly responsive mothers. Similarly, a sample of 100 children from low-income families in the United States of America (USA) revealed that maternal unresponsiveness during infancy predicted aggressive and disruptive behaviour at age three.¹⁷ A transactional model was used to explain this, i.e. an unresponsive parent provokes more intense demands from the infant, creating burdens for the parent and beginning an aversive cycle that ultimately leads to behavioural problems in the child. This model may be particularly relevant for malnourished infants, who are often listless or unresponsive. Such behaviour can frustrate the mother or lead her to direct her time elsewhere, only amplifying the problem.⁴

It is important to note that in these studies, maternal responsiveness often exerted its effects via infant attachment, the affective bond between the infant and caregiver.⁸ In general, responsive caregiving resulted in secure attachment (i.e. a warm and trusting relationship), which led to social competence and fewer behavioural problems.¹⁸ Unpredictable or rejecting caregiving, however, led to insecure attachment (i.e. an avoidant, anxious or disoriented relationship), which was associated with later problems.¹⁹ We opine that responsiveness largely influences child development, with or without attachment.

Developing countries

While research from developing countries has not been as extensive as in developed countries we found that the effects of maternal responsiveness on child development were relevant here too. In rural Ethiopia, mothers' verbal responsiveness predicted concurrent vocabulary development in their children.²⁰ Similarly, in rural India, stimulation by the mother was associated with greater behavioural development and intelligence in 196 malnourished three-year-old children.²¹

A study of a low-income Chilean population revealed three types of maternal "sensitivity" (defined as the ability to accurately perceive and promptly and appropriately respond to the infant's signals) that correlated with nutrition, attachment and mastery behaviour (e.g. enthusiasm and persistence) of

children:²² (1) mothers who overcame hurdles to provide care that promoted physical, cognitive and psychological health; (2) mothers who provided physical and nutritional care, but neglected the emotional response; and (3) mothers who failed on all accounts. The first type of mothers had more attached infants, who were better nourished and more competent than those of the less "sensitive" (i.e., unresponsive) mothers.

Other health outcomes

Responsive caregiving leads to enhanced survival and growth, as well as protects from disease.⁴ One of many health outcomes associated with maternal responsiveness, besides cognitive and psychosocial effects, was the protective effect of responsiveness on the development of low-birth-weight infants.¹⁴

We found that in many developing countries nutrition and maternal responsiveness were inextricably linked. In a study from West Bengal, India, mothers of the most undernourished boys (7–18 months old) had the lowest maternal responsiveness scores.²³ In Chile, mothers of malnourished infants had low levels of nonverbal responsiveness,²⁴ and in an East African village, malnutrition was described as a disorder of mother–child attachment.²⁵

Conversely, studies of "positive deviants", or children who demonstrated above-average health and development despite impoverished environments, showed that responsive childcare was a crucial factor for their success.²⁶ For example, a study of 260 children in rural India demonstrated a significant association between maternal responsiveness and positive deviance with regard to motor, mental and overall development.²⁷ Similarly, a study of 220 children in Mexico revealed that a less restrictive mother–infant interaction helped explain adequate nourishment despite adverse conditions.²⁸

Interventions enhance maternal responsiveness

While it is established that responsive parenting benefits the child's cognitive and psychosocial development and protects from disease and mortality, two questions remain — (1) can this skill be promoted; and (2) if so, then how? Our review of childcare interventions revealed that the skill can be promoted and that current interventions are effective in enhancing responsiveness. We

Table 1. Search strategy and number of articles identified for maternal responsiveness

Database	Search terms	Number of articles deemed relevant
MedLine (PubMed)	(Responsive OR Responsiveness OR Sensitivity) AND ("Parenting"[MeSH] OR "Maternal Behavior"[MeSH] OR "Mother-Child Relations"[MeSH]) AND ("Child Development"[MeSH] OR "Longitudinal studies"[MeSH] OR "Intervention Studies"[MeSH])	215
WHOLIS (WHO Library database)	Words or phrase: Child development OR attachment OR parenting AND intervention	2
Cochrane Review	Parenting OR mother-infant OR child development	3
World Bank	Parenting OR maternal OR child development	7
LILACS (Latin American and Caribbean Health Services)	Parenting OR child development	4
KoreaMed	Parenting OR mother-infant OR attachment AND intervention	16

reviewed intervention strategies in the context of responsiveness and present combined results from both the developed and developing world (which has not been attempted before) (Table 2) to help provide a background for the expansion of maternal responsiveness enhancing interventions.

The World Health Organization's manual for improving mother-child interaction mentions that "All adults have the capacity to lovingly care for their children, but a number of reasons stop some from doing so: poverty, stress, illness, or just lack of awareness of the need for such care".²⁹ The interventions we reviewed attempted to tackle the lack of awareness factor by using a number of strategies, such as home visits, clinic care, adult education, community projects, family therapy and mass media education.

Developed countries

The most common interventions included home visits and a combination of home visits and clinic care. Home-visiting programmes aimed to support families in promoting a positive home environment with the belief that infant development occurs best at home. Benefits of home visits, as opposed to other strategies, included greater capacity for follow-up care and the possibility to extend coverage to hard-to-reach families.

Within home-visiting programmes, we found a great diversity in techniques and outcomes. One of the more successful trials³⁰ targeted 100 infants (six months old) who were selected shortly after birth for being irritable, and therefore at risk for developing insecure attachment. The individually tailored

interventions — three two-hour sessions over three months — aimed to improve maternal responsiveness. The study assessed mother-infant interaction and infant exploration before and after the intervention, as well as attachment security three months after the intervention. The authors found that immediately post-intervention, mothers were more responsive and infants more sociable and engaged in exploration. Three months later, 62% of intervention infants were classified as secure, compared to 28% of control infants. The effect of intervention on maternal responsiveness and child cooperation persisted until the third year.³¹ We believe that this is strong evidence for a causal relation between responsiveness and attachment, which was not proved in the correlational studies reviewed above.¹⁰⁻²⁸

The most emulated home-visit intervention was conducted in semi-rural upstate New York,³² which tracked 400 mothers deemed needy (because they were teenaged, unmarried, or from a low socioeconomic background), and provided them with weekly nurse-run home visits from pregnancy through to when their child was two years old. The intervention focused on positive health-related behaviours, competent childcare and maternal development (e.g., family planning, education). The randomly assigned control group received standard clinic-based care. Immediately following the intervention, intervention families had decreased abuse and neglect and increased more appropriate mother-infant interaction.³² At 3-4 years, intervention children had 45% fewer behavioural problems and lived in less hazardous environments than control children.³³ When these children were 15 years old,

the intervention group had decreased criminal and antisocial behaviour: there were approximately 50% fewer runaways and arrests, and less drug use in the intervention group relative to the controls.³⁴ We conclude that home visitation programmes have the potential for long-term benefits.

Most home-visiting interventions benefit children and their families. The analysis of 34 home-visit studies targeting at-risk infants showed consistently improved home environments and parenting skills.³⁵ Similarly, a review of six large home-visiting programmes in the USA found a positive effect on parenting attitudes and practices, particularly for the neediest populations.³⁶ However, the latter review cautioned that the programmes struggled to enrol and retain families and that the benefits were modest, particularly for child health and development. Thus, not all reports in this field may have had obvious positive results.

To maximize the impact on families developed countries generally combined home visiting and clinic care to create a comprehensive intervention. However, given the amount of resources required for such interventions, they have generally focused on at-risk populations, such as low-birth-weight infants.

In a longitudinal study in Vermont, seven in-hospital and four home teaching sessions were held for mothers on how to adapt to their low-birth-weight infants, including how to act responsively.³⁷ Nine years later, these children showed better academic performance and behaviour than low-birth-weight infants who were randomly assigned not to receive the intervention. At the follow-up, intervention infants did not differ from

Table 2. Review of interventions enhancing maternal responsiveness in developed and developing countries

Study	Study site	Interventions	Outcome measures	Findings
Achenbach et al., 1999 ³⁷	USA	Three months of home and hospital sessions to teach mothers about caring for low-birth-weight infants	Children's cognitive development, school performance and behaviour	Better academic performance and behaviour; prevention of low-birth-weight associated cognitive lags
Cooper et al., 2002 ⁴²	South Africa	Six months of home visits by trained non-professionals to encourage responsiveness	Maternal mood, mother–infant relationship and infant growth	At six months, three times the maternal sensitivity, six times the maternal positive affect and 20% greater infant growth
Gardner et al., 2003 ⁴⁰	Jamaica	Two months of home visits to improve maternal–child interaction	Child cognition and behaviour	Children were more cooperative, happy, and better at problem-solving
Grantham-McGregor et al., 1991 ⁴⁴ ; Walker et al., 2000 ⁴⁵ and 2005 ⁴⁶	Jamaica	Two years of food supplementation, psychosocial stimulation, both, or control medical care	After intervention, child cognition, perceptual/motor skills and memory. At 11–12 years of age, child growth and IQ ^a . At 17–18 years, cognitive skills and school achievement.	Both interventions provided small global benefits. At 11–12 years, stimulation led to half standard deviation higher IQ. At 17–18 years, stimulated children had higher IQs and were less likely to drop out of school
Heinicke et al., 1999 ⁶	USA	Two years of relationship-based weekly home visits or clinic-based paediatric follow-up	Mother–infant interaction; mother's perceived support; infant behaviour and security; maternal responsiveness	Mothers were 20% more responsive and infants were three times more securely attached
Olds et al., 1986 ³² , 1994 ³³ and 1998 ³⁴	USA	Nurse visits from pregnancy through age two years, or control care in clinic	At age two years, child abuse and neglect, home environment, and emergency room visits. From two to four years, child health and development, maltreatment, and living conditions. At age 15 years, self-reports of criminal and antisocial behavior	At age two years, less abuse and neglect, more appropriate interactions, and fewer emergency room visits. From two to four years, 45% fewer behavioral problems and less hazardous environment. At 15 years, less drug use, more than 50% fewer runaways and arrests, and fewer sex partners
Super et al., 198 ⁴⁸	Colombia	Three years of home visits for psychosocial stimulation	Maternal responsiveness	Increased responsiveness after intervention
Super et al., 1990 ⁴⁹	Colombia	Three years of food supplementation, psychosocial stimulation, both, or control medical care	Physical growth	At three years, intervention group grew 2.6 cm and 642 g more than control group. At six years, growth was 1.7 cm and 448 g increased. Overall, children were 30% less stunted
van den Boom 1994 ³⁰ and 1995 ³¹	Netherlands	Three months of home visits to enhance sensitive responsiveness	At nine, 12, and 36 months, maternal responsiveness and attentiveness, infant sociability and exploration, and attachment	At nine and 12 months, positive results on all scales. At age three, maternal responsiveness and child cooperation continued to be improved
Waber et al., 1981 ⁴⁷	Colombia	Three years of nutritional supplementation and/or maternal education	Child's cognitive development	Food supplementation led to enhanced development
Walker et al., 2004 ⁴¹	Jamaica	Weekly home visits, at 0–8 weeks and 7–24 months, focusing on psychosocial interventions for low-birth-weight infants	Overall child development	Intervention eliminated developmental delays and led to better home environment
Wendland-Carro et al., 1999 ⁴³	Brazil	Shortly after delivery, video and discussion about mother–infant interaction (intervention) or information on basic caregiving (control)	Maternal sensitive responsiveness and physical contact	At one month, more vocal exchanges and physical contact; greater overall responsiveness

^a IQ = Intelligence quotient.

normal-birth-weight children, whereas control low-birth-weight infants performed significantly worse. This study showed that a short-term, early intervention can prevent developmental delays often associated with low-birth-weight. In general, interventions that combine clinic care and home visiting have been found to reduce (by 0.5–0.75 standard deviations) the decrease in intellectual performance usually suffered by at-risk infants.³⁸

Developing countries

It was difficult to find randomized controlled trials on responsiveness in developing countries. However, the evidence base is expanding with a growing agreement that parenting interventions are feasible for improving child health and development.³⁹ In the studies we reviewed, interventions used home visits and home visits in combination with nutritional supplementation.

Home visits to provide support and improve parenting was a well-established intervention in several developing countries, especially Bolivia, Honduras, India, Indonesia, Jamaica, Democratic People's Republic of Korea, Mexico, Peru, South Africa and Sri Lanka.³⁹ Unfortunately, while there is a lack of published studies tracking outcomes, a few well-designed studies have provided good results.

A two-stage intervention carried out on a cohort of 234 low-birth-weight infants in Kingston, Jamaica showed positive results.⁴⁰ The first stage (from 0 to 8 weeks) focused on improving maternal responsiveness (e.g. mothers were encouraged to talk to their babies and respond to their cues) and had a beneficial effect on child behaviour and problem solving at seven months.⁴⁰ The second stage (from 7 to 24 months) attempted to enhance maternal-child interactions, including demonstrations of play techniques. After both stages, children had improved home environments and development, eliminating the delays expected among low-birth-weight infants.⁴¹ The costs of supplies and training were low enough for the intervention to be feasible in the relatively resource-poor Jamaican community.

In an indigent community in South Africa, 32 control mother-infant dyads were compared with 32 dyads who underwent home visits by paraprofessionals for the first six months of infant life.⁴² The visits focused on encouraging maternal responsiveness. The study found

a large improvement in mother-infant interaction and in the height and weight of infants. We believe that although the study was nonrandomized, it showed that increasing maternal responsiveness/sensitivity affects physical growth of infants.

The effects of these interventions cannot be explained merely by the increased attention to the mothers in the intervention group. In Brazil, mothers were provided with one of two interventions shortly after delivery: a short videotape and discussion meant to enhance mother-infant interaction, or a control intervention focused on basic caregiving skills.⁴³ Both the interventions were carefully controlled to give the same amount of attention to all mothers. Follow-up at one month showed that the intervention group was more responsive to and engaged in more physical contact with their infants — an important result for a very low-cost intervention. Thus we hypothesize that the specificity of the intervention — i.e., its focus on responsiveness — is an important factor in its success.

To maximize outcomes and address immediate community needs, many interventions combined responsiveness training with nutritional supplementation. A sample of stunted children (9–24 months old) from Jamaica received nutritional supplementation, psychosocial stimulation, both types of interventions, or neither type, in two years of weekly home visits.⁴⁴ Children who received either type of intervention showed improved mental and motor development, while those who received both interventions resembled non-stunted children. These benefits persisted until the age of 12, when children who had received the combined interventions had half a standard deviation greater IQs than those who had not.⁴⁵ At age 17, children who had received stimulation demonstrated greater cognitive function and were less likely to drop out of school than stunted children who had not received any intervention.⁴⁶

A comparable study was completed in Bogota, Colombia, in the 1980s, in which 280 children at risk for malnutrition were provided with either food supplementation, home visits, both, or routine medical follow-up.^{47,48} The twice-weekly home visits included educating mothers about parenting. Immediately after applying the intervention(s), supplementation increased the cognitive ability of children,⁴⁷ stimulation (home

visits) increased maternal responsiveness,⁴⁸ while the combined intervention showed no added benefit. At six years, children who received the combined intervention were significantly taller than the other groups, and the most malnourished children were most likely to benefit.⁴⁹

We hypothesize that though these studies did not focus exclusively on responsiveness, they provide strong evidence that parenting education can benefit children beyond that from mere nutritional supplementation, and that care practices are crucial for optimal physical growth and psychosocial development.

Discussion

To our knowledge, this is the first such review that integrates maternal responsiveness studies from both developed and developing countries and defines responsiveness, discusses its effects on child health and development as well as the success of interventions meant to enhance it. We conclude that: (1) responsiveness is a basic, but vital, parenting tool, denoting prompt, contingent and appropriate interactions between the mother and child; (2) responsive parenting has wide-ranging benefits for the child, from psychosocial development to improved health and physical growth; and (3) interventions in both developed and developing countries have been modestly effective in enhancing maternal responsiveness, leading to better child health and development, especially for at-risk children.

One of the limitations of our review was that articles were restricted to the English language, limiting research from developing countries. Our preliminary search of non-English databases, however, revealed few relevant articles. More research needs to be done in developing countries before a polylingual analysis is warranted. Some of the studies we reviewed included interventions not directly related to responsiveness (e.g. nutritional supplementation). Although most studies included responsiveness-only conditions⁴⁴ or an attentional placebo,⁴³ the occasional lack of proper controls made it difficult to analyse the singular effect of responsiveness training.

In the studies we reviewed the influence of responsiveness on child health outcomes was “not always clear”.⁴ It is possible that children destined for better outcomes induced better maternal responsiveness, while children destined for

stunted development rejected attempts at responsiveness. In other words, responsiveness may be a symptom rather than a cause. Similarly, it was possible that inherited personality traits confounded the results of the various studies, in that responsive mothers were more likely to give birth to well adjusted children. Evidence from the interventions we reviewed, however, contradicted these claims. In controlled trials, those mothers who were randomly assigned to responsiveness training had children with better health and development. This suggests that responsiveness is a causative factor in enhancing a child's wellbeing.

We believe that as more research is completed, it will become increasingly practical and efficacious to advocate responsiveness in developing countries. One important advance would be to develop a package of resources to provide guidance on promoting responsive parenting through public health venues. Such a package would include training materials for health workers and families, planning guidelines and materials to monitor and assess the programmes, among other resources. With collaboration from country-based groups, this

package would be invaluable in optimizing child health policies.

Conclusions

We conclude that there is a strong link between childcare, development and health, with more responsive caregiving associated with better outcomes. For more than three decades, experts in developed and developing countries have designed interventions to increase responsiveness of mothers to their infants, hoping that these would improve health and development of children. These interventions have shown consistent, if modest benefits, both in boosting responsiveness and in promoting health and development.³⁵ In developed countries, the interventions seemed most effective when targeted at needy populations and focused on specific behavioural change.⁵⁰ In developing countries, they have been successfully integrated into routine care or other types of interventions. Moreover, experiences in these settings have shown that not only are responsiveness-focused interventions feasible, but that their benefits extend to other areas, including physical growth. Since the research sample was small,

however, more support must be provided to expand current research efforts, such as in Jamaica⁴⁶ and South Africa.⁴² We argue that while more research needs to be done to maximize success, current interventions are capable of boosting responsiveness and promoting child health and development.

To achieve a two-third reduction in child mortality, as expressed in Millennium Development Goal 4, children would need to receive adequate care at home in addition to health facilities. We believe that with sufficient knowledge and support, mothers could become more responsive to their infants, beginning a positive cycle of rewarding interactions that ultimately leads to improved outcomes for the child, and thus for society. We suggest that responsiveness interventions be integrated into child survival strategies to increase our chances to meet the Millennium Development Goal. ■

Acknowledgements

We thank Professor Gretel Pelto for providing insightful comments during the preparation of this manuscript.

Competing interests: none declared.

Résumé

Sensibiliser davantage les parents ou les personnes qui s'occupent d'enfants aux besoins des enfants qu'ils élèvent : interventions et résultats

Outre une alimentation adaptée, une bonne hygiène et un accès à des établissements de santé, les enfants ont besoin, pour que leurs chances de survie et leur développement soient optimaux, de recevoir des soins appropriés dans leur foyer. La réactivité, c'est-à-dire la capacité à réagir rapidement et de manière adaptée aux interactions avec l'enfant, est une composante essentielle de la sensibilité aux besoins infantiles, qui apporte une grande variété de bénéfices, allant d'un meilleur développement cognitif et psychosocial à un renforcement de la protection contre les maladies et la mort. À travers une revue systématique de la littérature provenant de pays développés et en développement, nous avons examiné deux aspects de la sensibilité des parents

aux besoins de l'enfant : son rôle dans l'état de santé et le développement de l'enfant et l'efficacité des interventions visant à la renforcer. Les résultats de cette étude indiquent que ces interventions parviennent à augmenter la réactivité maternelle, d'où une amélioration de l'état de santé et du développement des enfants, notamment parmi les populations dont les besoins sont les plus criants. Ces interventions étant praticables même dans les pays pauvres, elles présentent un important potentiel de contribution à la réalisation des Objectifs du Millénaire pour le développement. Nous proposons d'intégrer les interventions de sensibilisation aux besoins infantiles dans les stratégies en faveur de la survie des enfants.

Resumen

Ejercicio responsivo de la parentalidad: intervenciones y resultados

Además de alimentos, una buena higiene y acceso a los centros de salud, los niños han de disfrutar de una atención adecuada en el hogar si se desea garantizar su supervivencia y un desarrollo óptimo. La capacidad de respuesta, esto es, una reacción rápida, flexible y solícita de la madre o el cuidador a las necesidades del niño, constituye un medio de parentalidad vital que redundará en beneficio del niño por varios motivos, desde un mejor desarrollo cognitivo y psicosocial hasta la protección frente a enfermedades y a la muerte. Realizamos una revisión sistemática de publicaciones de países tanto desarrollados como en desarrollo para examinar dos aspectos de la parentalidad responsiva: su función en la

salud y el desarrollo del niño, y la eficacia de las intervenciones tendientes a mejorarla. Nuestros resultados muestran que las intervenciones mejoran eficazmente la responsividad materna, en beneficio de la salud y el desarrollo del niño, especialmente en las poblaciones más necesitadas. Dado que esas intervenciones fueron viables incluso en entornos pobres, podrían ser de gran ayuda para alcanzar los Objetivos de Desarrollo del Milenio. Proponemos por tanto que las intervenciones de aumento de la capacidad de respuesta se integren en las estrategias de mejora de la supervivencia infantil.

ملخص

إيتاء الرعاية المستجيبة: التداخلات والحصائل

تعزيزها، وذلك بإجراء دراسة مراجعة منهجية للأدبيات المنشورة حول ذلك في كل من البلدان النامية والمتقدمة. وقد أظهرت النتائج التي توصلنا إليها أن التدخلات فعّالة في تعزيز الاستجابة، وأنها تؤدي إلى تحسّن في صحة ونماء الطفل، ولاسيما في أكثر المجموعات السكانية احتياجاً. ولما كان من الممكن القيام بهذه التدخلات حتى في المواقع الفقيرة، فإنها تتمتع بالقدرة الكبيرة على مساعدتنا لبلوغ المرامي الإنمائية للألفية، ونقترح أن تدمج التدخلات التي تتسم بالاستجابة مع استراتيجية المحافظة على حياة وبقاء الأطفال.

يحتاج الأطفال إلى جانب الطعام والإصحاح والوصول إلى المرافق الصحية إلى الرعاية الكافية في المنزل للبقاء على قيد الحياة والنماء على أفضل نحو ممكن. ويعد كل من الاستجابة وما يتلقاه الطفل من تلقين من الأم أو من القائمين على إيتاء الرعاية له، والتفاعل الملائم في الوقت الملائم مع الطفل من الأدوات الأساسية لإيتاء الرعاية، والتي تعود على الطفل بطيف واسع من المنافع، تبدأ بالمعرفة الأفضل والنماء النفسي الاجتماعي وتمتد إلى الحماية من المرض ومن وقوع الطفل فريسة للموت. وقد تفحصنا وجهين لإيتاء الرعاية المستجيبة هما دور إيتاء الرعاية في صحة ونماء الطفل وفعالية التدخلات التي تستهدف

References

- Jones G, Steketee RW, Black RE, Bhutta ZA, Morris SS, Bellagio Child Survival Study Group. How many child deaths can we prevent this year? *Lancet* 2003;362:65-71.
- Shonkoff JP, Phillips DA, editors. *From neurons to neighborhoods: the science of early child development*. Institute of Medicine. Washington (DC): National Academy Press; 2000.
- Richter L. *The importance of caregiver-child interactions for the survival and health development of young children: a review*. Geneva: World Health Organization; 2004.
- Engle PL, Ricciuti HN. Psychosocial aspects of care and nutrition. *Food Nutr Bull* 1995;16: 356-77.
- Bornstein MH, Tamis-LeMonda CS. *Maternal responsiveness and cognitive development in children*. In: Bornstein MH, editor. *Maternal responsiveness: characteristics and consequences*. San Francisco: Jossey-Bass; 1989, no. 43:49-61.
- Heinicke CM, Fineman NR, Ruth G, Recchia SL, Guthrie D, Rodning C. Relationship-based intervention with at-risk mothers: outcomes in the first year of life. *Infant Ment Health J* 1999;20:349-74.
- Bradley R. *Home measurement of maternal responsiveness*. In: Bornstein MH, editor. *Maternal responsiveness: characteristics and consequences*. San Francisco: Jossey-Bass; 1989, no. 43:63-74.
- Bowlby J. *Attachment and loss. Volume 1. Attachment*. New York: Basic Books; 1969.
- Ainsworth MDS, Blehar M, Waters E, Wall S. *Patterns of attachment: A psychological study of the strange situation*. Hillsdale, NJ: Lawrence Erlbaum Associates; 1978.
- Tamis-LeMonda CS, Bornstein MH. *Maternal responsiveness and early language acquisition*. In: Kail R, Reese HW, editors. *Advances in child development and behavior*. San Diego: Academic Press; 2001.
- Bakeman R, Brown JV. Early interaction: consequences for social and mental development at three years. *Child Dev* 1980;51:437-47.
- Landry SH, Smith KE, Swank PR, Assel MA, Vellet S. Does early responsive parenting have a special importance for children's development or is consistency across early childhood necessary? *Dev Psychol* 2001;37:387-403.
- Beckwith L, Rodning C, Cohen S. Preterm children at early adolescence and continuity and discontinuity in maternal responsiveness from infancy. *Child Dev* 1992;63:1198-208.
- Laucht M, Esser G, Schmidt MH. Differential development of infants at risk for psychopathology: the moderating role of early maternal responsiveness. *Dev Med Child Neurol* 2001;43:292-300.
- Trivette CM. Influence of caregiver responsiveness on the development of young children with or at risk for developmental disabilities. *Bridges* 2003; 1:1-13. Available from: http://www.evidencebasedpractices.org/bridges/bridges_vol1_no3.pdf.
- Wakschlag LS, Hans SL. Relation of maternal responsiveness during infancy to the development of behavior problems in high-risk youths. *Dev Psychol* 1999;35:569-79.
- Shaw DS, Keenan K, Vondra JI. Developmental precursors of externalizing behavior — ages 1 to 3. *Dev Psychol* 1994;30:355-64.
- Benoit D. *Efficacy of attachment-based interventions*. *Encyclopedia on early childhood development*. Montreal: Centre of Excellence for Early Childhood Development; 2005:1-5.
- Green J, Goldwyn R. Annotation: attachment disorganisation and psychopathology: new findings in attachment research and their potential implications for developmental psychopathology in childhood. *J Child Psychol Psychiatry* 2002;43:835-46.
- About FE, Alemu T. Nutrition, maternal responsiveness and mental development of Ethiopian children. *Soc Sci Med* 1995;41:725-32.
- Agarwal DK, Awasthy A, Upadhyay SK, Singh P, Kumar J, Agarwal KN. Growth, behavior, development and intelligence in rural children between 1–3 years of life. *Indian Pediatr* 1992;29:467-80.
- Valenzuela M. Maternal sensitivity in a developing society: the context of urban poverty and infant chronic undernutrition. *Dev Psychol* 1997; 33:845-55.
- Graves PL. Nutrition, infant behavior, and maternal characteristics: a pilot study in West Bengal, India. *Am J Clin Nutr* 1976;29:305-19.
- Alvarez ML, Wurgaft F, Wilder H. Non verbal language in mothers with malnourished infants. A pilot study. *Soc Sci Med* 1982;16:1365-9.

25. Dixon SD, LeVine RA, Brazelton TB. Malnutrition: a closer look at the problem in an East African village. *Dev Med Child Neurol* 1982;24:670-85.
26. Zeitlin M, Ghassemi H, Mansour M. *Positive deviance in child nutrition: with emphasis on psychosocial and behavioural aspects and implications for development*. Tokyo: United Nations University Press, 1990.
27. Aruna M, Vazir S, Vidyasagar P. Child rearing and positive deviance in the development of preschoolers: a microanalysis. *Indian Pediatr* 2001;38:332-9.
28. Chavez A. [Various ecological aspects of malnutrition]. *Gac Med Mex* 1974;107:274-81 (in Spanish).
29. World Health Organization Programme on Mental Health. *Improving mother/child interaction to promote better psychosocial development in children*. Geneva: World Health Organization; 1998.
30. van den Boom DC. The influence of temperament and mothering on attachment and exploration: an experimental manipulation of sensitive responsiveness among lower-class mothers with irritable infants. *Child Dev* 1994;65:1457-77.
31. van den Boom DC. Do first-year intervention effects endure? Follow-up during toddlerhood of a sample of Dutch irritable infants. *Child Dev* 1995;66:1798-816.
32. Olds DL, Henderson CR, Jr., Chamberlin R, Tatelbaum R. Preventing child abuse and neglect: a randomized trial of nurse home visitation. *Pediatrics* 1986;78:65-78.
33. Olds DL, Henderson CR, Jr., Kitzman H. Does prenatal and infancy nurse home visitation have enduring effects on qualities of parental caregiving and child health at 25 to 50 months of life? *Pediatrics* 1994;93:89-98.
34. Olds D, Henderson CR Jr, Cole R, Eckenrode J, Kitzman H, Luckey D, et al. Long-term effects of nurse home visitation on children's criminal and antisocial behavior: 15-year follow-up of a randomized controlled trial. *JAMA* 1998;280:1238-44.
35. Kendrick D, Elkan R, Hewitt M, Dewey M, Blair M, Robinson J, et al. Does home visiting improve parenting and the quality of the home environment? A systematic review and meta analysis. *Arch Dis Child* 2000; 82:443-51.
36. Gomby DS, Culross PL, Behrman RE. Home visiting: recent program evaluations — analysis and recommendations. *Future Child* 1999;9:4-26.
37. Achenbach TM, Howell CT, Aoki MF, Rauh VA. Nine-year outcome of the Vermont intervention program for low birth weight infants. *Pediatrics* 1993; 91:45-55.
38. Guralnick MJ. Effectiveness of early intervention for vulnerable children: a developmental perspective. *Am J Ment Retard* 1998;102:319-45.
39. Pelto GH, Dickin K, Engle PL. *A critical link: interventions for physical growth and psychological development*. Geneva: World Health Organization; 1999.
40. Gardner JM, Walker SP, Powell CA, Grantham-McGregor S. A randomized controlled trial of a home-visiting intervention on cognition and behavior in term low birth weight infants. *J Pediatr* 2003;143:634-9.
41. Walker SP, Chang SM, Powell CA, Grantham-McGregor SM. Psychosocial intervention improves the development of term low-birth-weight infants. *J Nutr* 2004;134:1417-23.
42. Cooper PJ, Landman M, Tomlinson M, Molteno C, Swartz L, Murray L. Impact of a mother–infant intervention in an indigent peri-urban South African context: pilot study. *Br J Psychiatry* 2002;180:76-81.
43. Wendland-Carro J, Piccinini CA, Millar WS. The role of an early intervention on enhancing the quality of mother–infant interaction. *Child Dev* 1999; 70:713-21.
44. Grantham-McGregor SM, Powell CA, Walker SP, Himes JH. Nutritional supplementation, psychosocial stimulation, and mental development of stunted children: the Jamaican Study. *Lancet* 1991;338:1-5.
45. Walker SP, Grantham-McGregor SM, Powell CA, Chang SM. Effects of growth restriction in early childhood on growth, IQ, and cognition at age 11 to 12 years and the benefits of nutritional supplementation and psychosocial stimulation. *J Pediatr* 2000;137:36-41.
46. Walker SP, Chang SM, Powell CA, Grantham-McGregor SM. Effects of early childhood psychosocial stimulation and nutritional supplementation on cognition and education in growth-stunted Jamaican children: prospective cohort study. *Lancet* 2005;366:1804-7.
47. Waber DP, Vuori-Christiansen L, Ortiz N, Clement JR, Christiansen NE, Mora JO, et al. Nutritional supplementation, maternal education, and cognitive development of infants at risk of malnutrition. *Am J Clin Nutr* 1981;34 Suppl 4:807-13.
48. Super CM, Clement JR, Vuori-Christiansen L, Christiansen NE, Mora JO, Herrera MG. *Infant and caretaker behavior as mediators of nutritional and social interventions in the barrios of Bogota*. In: Field TM, Sostek AM, Vietze P, Leiderman PH, editors. *Culture and early interactions*. Hillsdale, NJ: L. Erlbaum Associates; 1981:171-88.
49. Super CM, Herrera MG, Mora JO. Long-term effects of food supplementation and psychosocial intervention on the physical growth of Colombian infants at risk of malnutrition. *Child Dev* 1990;61:29-49.
50. Bakermans-Kranenburg MJ, van IJzendoorn MH, Juffer F. Less is more: meta-analyses of sensitivity and attachment interventions in early childhood. *Psychol Bull* 2003;129:195-215.