Child language interventions in public health: a systematic literature review

Intervenções em linguagem infantil na atenção primária à saúde: revisão sistemática

ABSTRACT

Objective: Systematically review the literature on interventions in children’s language in primary health care. Methods: One searched the electronic databases (January 1980 to March 2013) MEDLINE (accessed by PubMed), Scopus, Lilacs and Scielo. The search terms used were “child language”, “primary health care”, “randomized controlled trial” and “intervention studies” (in English, Portuguese and Spanish). There were included any randomized controlled trials that addressed the issues child language and primary health care. The analysis was based on the type of language intervention conducted in primary health care. Results: Seven studies were included and used intervention strategies such as interactive video, guidance for parents and group therapy. Individuals of both genders were included in the seven studies. The age of the children participant in the samples of the articles included in this review ranged from zero to 11 years. These seven studies used approaches that included only parents, parents and children or just children. Conclusion: The mainly intervention in language on primary health care, used in randomized controlled trials, involved the use of interactive video. Several professionals, beyond speech and language therapist, been inserted in the language interventions on primary health care, demonstrating the importance of interdisciplinary work. None of the articles mentioned aspects related to hearing. There was scarcity of randomized controlled trials that address on language and public health, either in Brazil or internationally.

RESUMO

Objetivo: Revisar sistematicamente na literatura as intervenções realizadas em linguagem infantil na atenção primária à saúde. Métodos: Foram pesquisadas as bases de dados eletrônicas (de janeiro de 1980 até agosto de 2013) MEDLINE (acessada pelo PubMed), Scopus, Lilacs e Scielo. Os termos da busca utilizados foram “child language”, “primary health care”, “randomized controlled trial” e “intervention studies” (em inglês, português e espanhol). Foram incluídos quaisquer ensaios controlados randomizados que abordassem os temas linguagem infantil e atenção primária à saúde. A análise foi descritiva quanto ao tipo de intervenção em linguagem realizada na atenção básica em saúde. Resultados: Dez estudos foram incluídos e utilizaram estratégias de intervenção como o vídeo interacional, a orientação aos pais e a terapia em grupo. Indivíduos de ambos os gêneros foram incluídos nos sete estudos. A idade das crianças participantes das amostras dos trabalhos incluídos nesta revisão variou de zero a 11 anos. Esses sete estudos utilizaram abordagens que incluíam somente os pais, os pais e as crianças ou apenas as crianças. Conclusão: Observou-se que as intervenções em linguagem na atenção primária, utilizadas em ensaios clínicos controlados randomizados, envolvem principalmente o uso de vídeos interacionais. Diversos profissionais, além dos fonoaudiólogos, estiveram inseridos nas intervenções em linguagem na atenção primária, demonstrando a importância do trabalho interdisciplinar. Nenhum dos estudos mencionou aspectos relacionados à audição. Há escassez de ensaios clínicos controlados randomizados que tratem sobre a linguagem e a saúde coletiva, seja no Brasil ou internacionalmente.
INTRODUCTION

Communication may take place by non-verbal means; however, most part of it happens through the conversion of ideas into written and oral languages\(^1\). The absence of language or its late acquisition, in relation to the chronological and school education, limits expected, may indicate alterations in development. Great part of these alterations in the evolutive course of language could be solved, in case there was precocious diagnostic and adequate intervention\(^2\).

It is observed that the problems related to language are not properly identified and that data related to health and primary attention in this area are missing. Between 5 and 8% of pre-school children present a delay in language development, which many time persists throughout the school years into their adult life\(^3\). These alterations are associated to poor school performance, difficulties in social interactions, and emotional relationships\(^4\). In this sense, phonoaudiological intervention is necessary to guide the child along the language development process as well as to orient family counseling\(^1\).

Health professionals and educators, mainly the ones who act in the basic attention and in the public school networks, should be a target to training and continued capacitacion in order to adequate to needs of the infant population\(^5\). Information regarding infant language shall be within everyone’s reach so that they orientate and guide the individuals toward the necessary interventions\(^2\). The primary health attention is essential in this process of early detection of language alterations and integral part of the country’s health system. In this context, basic attention leads to health attention as close as possible from the places where people live and work in, setting the first element of a process of continuous health attention\(^6\).

The phonoaudiological performance, therefore, encompasses promotion, protection, and health recovery actions in different aspects related to human communication\(^7\). This action, carried out in teams, is a growing practice in health care and it is characterized by the interaction in professional relationships\(^8\). In the multiprofessional team, the articulation refers to the recomposing of distinct work processes and, therefore, to the considering of connection and interfaces among the technical interventions of each professional area\(^9\).

OBJECTIVE

Thus, the objective of this study is to revise systematically the literature on the interventions made in infant language in the primary health care.

METHODS

Research strategy

The MedLine (accessed through PubMed), Scopus, Lilacs, and Scieloelectronic data bases search in the period from January 1980 to March 2013. The terms used for searching were “child language,” “primary health care,” “randomized controlled trial,” and “intervention studies”, their sub-terms and their equivalents in Portuguese and Spanish. The search was restricted to studies with samples of families and children up to 12 complete years of age, as considered by the Child and Adolescent Statute\(^10\).

Selection criteria

The studies included in this revision were the ones which would properly describe the kind of intervention used, carried out in the context of basic care, that approaches the themes of infant language and primary health care, classified as randomized controlled clinical assays. This classification was prerequisite for the inclusion of the researches in order to maintain the quality of the systematic review. Randomized controlled clinical assays are able to minimize the influence of harmful factors on the cause–effect relations and also to trust a source of evidences.

The systematic reviews, despite being considered even more relevant, are secondary studies, i.e., they depend on primary studies with enough quality to derive inferences. That is the reason of the importance of randomized clinical assays as source of evidence also to the systemic reviews\(^11\).

There was no restriction as to the expected disclosures in order to increase the sensibility of the research. Articles which would not approach the language theme, would not approach the public health theme and the language intervention in primary care, articles which included only individuals over 12 years of age and would not describe in a trustable way the kind of intervention used were excluded from the study.

Data analysis

The process of data analysis was put together by three stages. In the first, two independent revisors carried out the reading of the titles and abstracts of the articles identified by the search strategy. The ones which did not provide sufficient information were selected to the second stage called “full evaluation of the text phase” along with the ones that did fulfill the inclusion criteria.

In the phase of evaluation of the full version of the text, both revisors, independently, analyzed the articles in full and made selections according to the legibility criteria. All disagreements among each other were solved by consensus. In the third phase, there was the filling of a standard information form about each included study, containing information about their methodological characteristics, the interventions and the disclosures described in each research. The main data collected were about the interventions in language, with individuals in the infant age range, in the primary health care area.

RESULTS

As a result of the final search, 256 studies were identified, among which 10 would match the inclusion criteria and were considered relevant to the sample of this study, being then analyzed thoroughly (Figure 1).
Individual of both genders were included in 10 studies. The age of the children in the sample of the studies included in this review varied from 0 to 11 years of age. These 10 studies used approaches which included only the parents\(^{(12,13)}\), the parents and the children\(^{(14,17)}\), or only the children\(^{(18)}\).

The strategies of intervention in language used were programs with both parents, or only with the mother, in order to promote language through shared games\(^{(12)}\), shared reading\(^{(14)}\), interactional video\(^{(12,14,15)}\), guide book on how to stimulate language\(^{(12)}\), workshops\(^{(12)}\), supplies to assist learning\(^{(14)}\), informative brochures\(^{(14)}\), newspapers with specific age appropriate interactive activity\(^{(14)}\), home visits\(^{(17)}\), teaching of mothers on how to deal with your own anxiety and stress signals, facilitating the relationship with their children as well as the development of those\(^{(13)}\), the strengthening of the family bond\(^{(16)}\) and group orientations\(^{(18)}\), and the preparation for going to school with the parents. In Table 1 are presented the main characteristics of the studies included in the present review, such as authors, original language, periodical, impact factor, and age of the sample.
kind of intervention performed, number of participants, and the average age of the sample.

Most part of the studies\(^{14-17}\) performed joint interventions with parents and offspring (children and new borns). One of them\(^{14}\), performed in a pediatric clinic of a public hospital of primary care in the United States, aimed to determine the effects of interventions in the relationship of parents and children of 410 low-income families. The first group, called Video Interaction Project (VIP), took part in sessions with a specialist in infant development and received interventions from the visualization of videos in which occurred the interaction with the child, shared reading and learning supplies (toys and informative brochures). The second group, called Building Blocks, received intervention through an informative suggesting interactive activities to each age, and a learning material. In both cases, there was an increase of the interactions between parents and children in comparison to the control group, which received just the usual pediatric care. However, the first group presented better results. It was shown that primary interventions in the contact of mother and child, including the language, even without a determined age for this intervention. It was also observed that the higher the level of the mother’s education, the better the results of interventions in the children’s development.

The VIP approach involves watching videos of moments of interaction between parents and children with the specialist in infant development, highlighting the positive and negative points of the interaction. This technique supports the relationship and improves the socioemotional development and the infant language. In the VIP group debates on the expectations and worries of the parents about the child happen, and there is the supplying of the material about infant development. The specialist builds a caring relation with each family, favoring the full development of the child\(^{14,15}\).

Another study\(^{15}\) also used the technique of interactional videos in a primary care program. Ninety-nine children were at development risk due to poverty and low maternal education took part in the study. The direct intervention called VIP was analyzed, compared to a control group. The group that received the VIP intervention improved as to behavior and education, and the parents revealed themselves less stressed out. It was concluded that the pediatric intervention programs in primary care can evolve the general and language development of children in risky situations.

An Australian research\(^{16}\) included 3,001 families of different races, ethnicities, and languages in the program Early Head Star, destined to look after low-income pregnant women and families with babies up to 3 years of age. The program sought to evaluate how much the development of both children and parents improve when there is a fortification of the family bonds and home and day care visits, parenting orientation, educational and health support and the making of referrals are included. The results showed that children from 0 to 3 years of age who had joined the program presented better cognitive and language performance, higher affective involvement with parents and reduction in aggressive behavior. Parents who joined the program stand out for offering more emotional support, for stimulating the learning of other languages, for reading more to their children and for presenting lower rates of domestic violence.

Still in the line of infant intervention, another study included in this review\(^{17}\) evaluated the effectiveness of a program of preventive home visits during the first 12 months of life of newly borns, extreme pre-terms and their families. It was verified the effect of the ViBes Plus Intervention Program, a program of interventions in which the worries of care takers and the strategies used, along with the therapist, are approached. The team was formed by a physical therapist and a psychologist, through nine sessions, who observed aspects such as cognition, motor and language development and the interaction of the child with the care taker. The children were evaluated until they completed 2 years of age and there was no difference between the control group and the one which received the intervention. However, the parents of children who received the intervention reported that their children presented less behaviors of emotional disarray, in addition to better performance in everyday tasks. They also reported lower levels of anxiety and depression.

In this sense, the precocious detection of language delay and the knowledge of the risk and protection factors are vital to the organization of infant intervention programs, which have positive effects in the school progress\(^{19}\). Inadequate educational practices are related to cognitive and social development in the academic performance of children\(^{20}\).

Some other studies generated interventions directly with the parents\(^{12-14}\). Pediatricians, psychologists, and speech language therapists made low-cost preventive interventions, as well as oriented the parents of children with language delay risk for presenting reduced vocabulary.

In one of the studies\(^{12}\), through workshops, parents watched videos of themselves interacting with their children, observing positive and negative aspects and getting information on how to contribute to the development of the child. The program had the support of videos, a handbook and workshops, and the duration of six weekly sessions of 2 hours. At 3 years of age, most children from both groups reached the ideal score in instrument which measured vocabulary. Although great part of the parents (76%) reported being satisfied with the program, the improvement of language or vocabulary was not significant. Another study\(^{13}\) performed an intervention destined to reduce maternal anxiety and to promote higher interaction among mothers of very low weight new borns, helping with a more adequate interaction and better language development. In the first group, mothers were oriented to observe physiological, cognitive and anxiety emotional signs, and thereby to use cognitive–behavioral strategies to reduce stress. They were also oriented to understand infant clues and to respond to signals from their children. In the second group, mothers received general information on baby care. Both groups took part of six meetings with a trained professional for the activity, and the forms of intervention reduced maternal anxiety and increaser the mothers’ sensibility, helping the general and language development of the child\(^{13}\).

Another research aimed to improve infant health throughout development, supporting adequate parental practices. The results were grouped in three domains: health and infant
development; parental practices; and parents’ well-being. The intervention was performed by four professionals. One group received post birth labor visits and counseling on development; another group, three household visits structured in order to help parents creating a safe and cozy environment and they received screening and interventions related to risk factors such as depression, smoking habits, and domestic abuse. Positive results, especially in vocabulary of the group of children who received the professionals, were observed.

A research carried out by Sheridan et al. (22) presents the results of an intervention which aimed the involvement of the father throughout the preparation for the trip to school, focusing particularly on the language and development of literacy. Two hundred and seventeen children, 211 parents, and 29 teachers from 21 schools took part in the study. Statistically significant differences in favor of the group in which parents took part in the intervention were observed, especially in relation to the use of infant language, reading and written abilities, observed over 2 years by the teachers.

The effectiveness of the intervention Child First was observed in a study carried out in Bridgeport, in the United States, in the houses of the participant families, through psychotherapeutic care. Mothers who would present risks and children with ages between 6 and 36 months were part of the research. In the 12-months follow-up, the children from the study improved and the degree of intellectual and cultural orientation of the children’s development(28). The limited vocabulary from 18 to 24 months of age was also considered a risk to adequate language development(28). The use of video resource, as a way of showing the parents how to regulate their own actions, learning to contribute and stimulate their children’s language. The objective of this technique was to improve language and socioemotional development of the individuals, the low cost being the main advantage(15). The use of video resource, and the exhibition of those with later discussion, features as an important instrument to popular education in health(24). The importance of the video is in the fact that the images can be interrupted, repeated, and recorded. Besides that, it can be taken anywhere there is a reproducing device(25). Furthermore, vision and images are the main channel to obtain information by the men.

Studies(14,15) performed verbal interventions with games and shared reading, fundamental for the preparation to school, since the number of children of low socioeconomic level who fall behind in reading level is high, compared to their age range. A research(14) also used auxiliary material in learning, such as informative brochures with suggestions for the usage of objects, among them toys, books, and lullaby CDs. They also received a mirror and a newspaper with specific interactive activities for each age, in order to stimulate cognition and verbal language.

The household visits performed were focused on baby’s development, on the relationship between parents and children, and the parents’ mental health(12); teaching mother to notice the physiological clues, cognitive signals and both their behavior and the children’s, having significative impact on development of children, also suggesting visits to specialized centers(16). It was not observed any impact on cognitive and language development in programs which were solely of household visits, presenting better results when it was associated to other kind of interventions, such as visiting specialized centers. The consulting of school professionals, performed in the United Kingdom, was proved to be less efficient than direct therapy with the speech language pathologist (individual or in group)(18), corroborating the efficiency and the importance of follow-up from specialists in infant development process of children at risk and the ones who already presented language alterations.

In relation to the sociodemographic data, only one study classified different economic classes(12), dividing the sample into three classes. Social factors affected the individual biological conditions, risk behaviors, environmental exposure and the access to resources to promote health(27). Two researches(14,16) selected samples of low socioeconomic level. One study(15) counted on children with mothers of low education, fact determined as a risk factor to the development of infant language.

The toys and games available at home, the quality of maternal involvement, the number of people who live together and the degree of intellectual and cultural orientation of the closest family members and care takers are intimately related to language development(28). The use of drugs by parents, poverty and child abuse or negligence are important risk factors to infant development(28). The limited vocabulary from 18 to 24 months of age was also considered a risk to adequate language development(12). The socioeconomic factor can also influence in vocabulary development, showing that the risk factors are interrelated and deserve special attention by the professionals who work with infant public.

The age of the children participating in the study was between 0 (including the gestational period, through interventions with pregnant women) and 11 years of age. Regarding the professional who performed the intervention, the studies presented themselves diverse. It is noteworthy the monitoring of speech language therapists(12), psychologists(12), physical therapists(17),
and specialists in non-specified infant development\cite{14,15}. In this context, it is highlighted that the trade of knowledge is essential among the various professional areas involved in infant development in order to promote interdisciplinarity, and consequently, to broaden the knowledge of professionals about the development process, turning their look over children into a wider one\cite{31}.

Although it is known that hearing is essential for the acquisition of oral language\cite{32}, none of the randomized controlled clinical assays included in this review mentioned aspects related to hearing. There are strong reasons for performing hearing screening, such as the impact of hearing loss in cognitive development, in language acquisition and in social integration\cite{33}. A review of the intervention studies with American children\cite{34} revealed that the hearing loss, when submitted to treatment before 6 months of age, will allow the child to have a better language development.

Finally, it was observed in this review that there is a shortage of randomized controlled clinical assays regarding language in primary care, both in Brazil and internationally. There is a need of health professionals to rethink their practices, directing them toward the vision of primary care and collective health\cite{35}, considering adequate language as a basic condition for a life of quality.

**CONCLUSION**

The language interventions in primary health care, used in randomized controlled clinical assays, involve mainly the use of interactional videos. It was also observed that the use of games, shared reading, group workshops and household visits, among other approaches, showing that interventions with the parents result in better development of the children, especially in the language area, whether they are in groups of risk factor or not.

The interventions were carried out before children competed 3 years of age. Other studies show that the first 3 years of age are critical for the acquisition of information about the world\cite{36}. The precocious intervention implemented is crucial, especially when it is intended to obtain benefits for both children and their families\cite{37}.

Several professionals, besides the speech language therapists, have been inserted in language intervention in primary care, such as psychologists, physical therapists and social care agents, demonstrating the importance of interdisciplinarity work among those who work on infant development. This performance develops a new understanding about the user of the public health system, growing a distance from the vision focused in the disease, and pointing out to the aspects of its individualities and familiar and social relationships\cite{38}.

None of the studies mentioned aspects related to hearing, but it is known that this is a pre-requisite for the acquisition and development of language, and that the hearing losses affect in an important way, the development of language and speaking\cite{36,38}. As limitations for this study there is the choice of including just randomized controlled clinical assays. Although they are essential for the carrying out of quality systemic review, some relevant study might have been excluded in the present review.

There was a paucity of the randomized controlled clinical assays, which address to language as a primary care to health, not being found any publications in Brazil about this kind of intervention, and little international publications. It is suggested, thus, more studies, in ideal research situations, in order to equip professional who already work with both precocious identification, giving condition not only to the precocious identification and adequate intervention, but also to the prevention of infant language alterations and in general children development.

**REFERENCES**


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