Social Science & Medicine xxx (2013) 1–9

Contents lists available at SciVerse ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

Effectiveness of a parenting program in Bangladesh to address early childhood health, growth and development

Frances E. Aboud [a,*], Daisy R. Singla [a], Md Imam Nahil [b], Ivelina Borisova [b]

[a] McGill University, Canada
[b] Save the Children International, Bangladesh

ARTICLE INFO

Article history:
Available online xxx

Keywords:
Parenting intervention
Early childhood
Program evaluation
Cognitive development
Language development
Length-for-age
Bangladesh

ABSTRACT

A stratified cluster design was used to evaluate a 10-month parenting program delivered to mothers of children in rural Bangladesh. Intervention mothers through a combination of group meetings and home visits received messages along with an illustrative card concerning hygiene, responsive feeding, play, communication, gentle discipline, and nutritious foods. Control mothers received the standard government care. Three months prior, 463 children between 4 and 14 months in a subdistrict of western Bangladesh were administered the cognitive, receptive language and expressive language Bayley III subtests, their length was taken and past week illness recorded. Gross motor milestones were reported by the mother and verified through observation. Mothers were interviewed concerning their practices: preventive health practices, dietary diversity, home stimulation, and knowledge about development milestones. Maternal depressive symptoms were assessed as a measure of emotional availability. Family sociodemographic variables included maternal education, family assets, decision-making and mobility autonomy. One month after the end of the program, mothers and their children were again assessed. Comparisons were made between intervention and control children who were under-12 months vs. 12 months and older at the start of the program. This may be a critical age, when children begin to be upright and mobile enough to explore on their own and be less dependent on parenting stimulation. Analyses yielded strong intervention effects on the three Bayley subtests and on parenting practices related to stimulation and knowledge of development milestones. Age effects were found only for dietary diversity in that younger children in the program benefited more than older ones. However, all children became more stunted. Findings are discussed in terms of theories of behaviour change and parenting, critical ages for parenting programs, and implications for program delivery.

Introduction

With 39% of children worldwide falling short of their potential for development and growth, parenting programs have been considered as one promising strategy to address the problem (Engle et al., 2007; Engle, Fernald et al., 2011). By modifying caregiver practices, parenting programs can address both stunting and stimulation, two critical sources of the problem (Walker et al., 2007). A critical aspect of caregiver practice concerns responsive parenting in relation to both feeding and stimulation (Eshel, Daelmans, Cabral de Mello & Martines, 2006), meaning that in addition to following guidelines for what provisions to offer, parents time their input in response to child cues (Black & Aboud, 2011). Another issue concerns the age at which children are to receive better food and stimulation. A review of recent parenting programs included mostly ones delivered to parents of children under-2 years, while previous programs were for children under-5, with most being for children 3–5 years (Engle et al., 2007; Engle, Fernald et al., 2011). Finally, there is greater attention to theories of behaviour change when developing materials and modes of interacting with parents (Briscoe & Aboud, 2012). Because the goal is to improve child outcomes indirectly through parenting practices, rather than directly through child supplementation and instruction, theories of behaviour change are needed. No single "best" model currently exists, particularly for low-resource countries such as Bangladesh, which with a score of 0.515 (cf South Asia 0.558) ranked 146 out of 187 countries on the Human Development Index (UNICEF, 2012). Consequently, we developed, implemented, and evaluated a 10-month program in rural Bangladesh to examine the effectiveness of a responsive feeding and stimulation program on caregiver practices and outcomes of children under-2 years.

* Corresponding author. Department of Psychology, McGill University, Montreal, QC, Canada, H3A 1B1. Tel.: +1 514 398 6099; fax: +1 514 398 4896.
E-mail address: Frances.Aboud@mcgill.ca (F.E. Aboud).

0277-9536/$ – see front matter © 2013 Elsevier Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.socscimed.2013.06.020

Evaluations of parenting programs

Programs aimed at modifying caregiver practices typically focus on nutrition, hygiene, and stimulation. Nutrition education advocating age-appropriate foods is often intensive with positive effects on the caregivers' practices and fewer effects on children's weight and height (for reviews, see Bentley, Wasser & Creed-Kanashiro, 2011; Dewey & Adu-Afarwuah, 2008). In South Asia, where malnutrition is high, nutrition education must be intensive (e.g., Roy et al., 2005; Vazir et al., 2013) and/or in a food secure region (e.g., Aboud, Moore & Akhter, 2008) to be effective. Because of high levels of stunting and low dietary diversity among Bangladeshi children (UNICEF, 2012), the current parenting program delivered messages on foods to feed, amounts, frequencies, and responsivity to child cues of hunger and satiety (WHO, 2003). Given high levels of illness, we also promoted hand-washing before food preparation and child feeding.

Programs that focus on providing stimulation to children through play materials and conversation are more recent and variable with some providing a play leader and some advising parents to provide materials and conversation (Aboud & Akhter, 2011; Cooper et al., 2009; Eickmann et al., 2003; Gardner, Walker, Powell & Grantham-McGregor, 2003; Hamadani, Huda, Khatun & Grantham-McGregor, 2006; Nahar et al., 2012; Vazir et al., 2013; Yousafzai, Rasheed, Rizvi, Armstrong & Bhutta, 2013). Stimulation is known to be necessary for cognitive and language development of young children (Tamis-LeMonda, Bornstein & Baumwell, 2001). Neuroscience research suggests that stimulation should start early in the postnatal period before unused synapses are pruned (Fox, Levitt & Nelson, 2010) and should be responsive to a child's signals of attention and interest (Eshel et al., 2006; Landry, Smith, Swank & Guttentag, 2008). Scores on the HOME Inventory now used worldwide (Bradley & Corwyn, 2005) reveal inadequate levels of stimulation in many low-income countries, including Bangladesh (e.g., Aboud & Akhter, 2011; Kariger et al., 2012). Parents are often not aware of the need for play materials, playmates, and responsive interaction. The responsive parenting conceptual framework (Black & Aboud, 2011) and the HOME Inventory helped to identify forms of responsive stimulation for the current program, including providing play materials, having dyadic conversations, showing love, responsive feeding, and avoiding harsh and forceful practices (see also UNICEF's Early Child Development Unit, 2009; WHO, 1997).

Theories of behaviour change

Active learning strategies may be necessary when the goal is to change the practices of caregivers. Demonstrations by a trained worker and practice by the caregiver are found to be more successful than flipcharts and information alone (Briscoe & Aboud, 2012). This is because lack of awareness is not the only barrier; habit, socio-cultural constraints, and social norms make it difficult to change (Affleck & Pelto, 2012). The more means for engaging the caregiver in learning, seeing and doing, the better. While adult education theory emphasizing knowledge change may have been the basis of early parenting programs (Holford, 1995), current ones either implicitly or explicitly use social learning theory (Bandura, 1986) or the stage theory of change (Prochaska, Redding & Evers, 2002). For example, Luby et al. (2010) successfully used home visits and community sessions to demonstrate, solve problems, provide visual cues, and reinforce hand-washing in Bangladesh. Eickmann et al. (2003) also used 14 group sessions and home visits on a weekly basis with caregivers of children to demonstrate, solve problems, and practice child stimulation.

The current parenting program used community groups and home visits over the course of 10 months. Change techniques included demonstration, practice, and problem-solving; a take-home brochure with illustrations provided a reminder with cues to action. Thus, techniques explicitly emerged from social learning theory.

Ages for parenting programs

Although most researchers agree that good nutrition, hygiene and stimulation should be present in the early years (under 3 years), few offer specific ages. One view is that ages for growth spurts (in the first 2 years) and language developments (in the 2nd and 3rd years) are the times when nutrition and stimulation are essential to meet children's needs. For example, most now agree that stunting is largely determined in the first 2 years (Black et al., 2008; but see Crookston et al., 2010). If children are stunted in those first 2 years, they will find it difficult to recover in height, one of the major determinants of health and development. These views appear to have had an effect on the age at which recent parenting programs target young children, namely under-2 years (Engle, Fernald et al., 2011). Regarding cognitive development, there is some evidence that standing and walking (being upright and mobile) facilitate stimulating exploration (Rheingold & Eckerman, 1970), which in turn might promote cognitive development. Nutritionists have therefore advocated specific nutrients in the first year that are found to be associated with or result in early walking (Brown & Pollitt, 1996; Dewey, Bohen, Brown & Rivera, 2001; Kariger et al., 2005). However, there is no evidence that upright mobility is associated with cognitive development independent of age. If it is, then parenting programs might have a particularly strong effect on infants, who lack mobility and therefore depend on caregivers to provide stimulation. Consequently, we compared the effects of the parenting program on children who were under-12 months with those who were 12 months and older at the start of the program.

The aim of this randomized cluster trial was to evaluate a parenting program, delivered by local paraprofessionals in rural Bangladesh as compared to care as usual. Specifically, we examined program effects on child outcomes of growth, health and development along with parenting practices.

Methods

Design

The design was a stratified cluster field trial in which the fixed variable was assignment to a parenting intervention or standard care. The other variable of interest was the child's age: children under 12 months at the start of the program were compared with children 12 months and older. Four unions surrounding the town of Meherpur, where Save the Children International had a program office, were selected as the sites for the intervention. Because some service providers were government employees, organized at the union level, the programs were similarly organized for logistical and administrative reasons. This also helped to avoid contamination. Two unions were randomly assigned to the intervention and two to the control program. Villages were assigned a program implementer who delivered parenting messages. Ethical approval was granted by the Bangladesh Medical Research Council and McGill University. Mothers provided informed consent for data to be collected from them and their children. Baseline data were collected during November 2010, and endline during February 2012. The study was registered with Clinical Trials NCT01466933.

Please cite this article in press as: Aboud, F. E., et al., Effectiveness of a parenting program in Bangladesh to address early childhood health, growth and development, *Social Science & Medicine* (2013), http://dx.doi.org/10.1016/j.socscimed.2013.06.020