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Infant and young child feeding counseling: an intervention study

Katia Cristina Bassichetto,¹ Marina Ferreira Réa²

Abstract

Objective: To evaluate the effectiveness of an integrated infant and young child feeding counseling course for transforming the knowledge, attitudes and practices of pediatricians and nutritionists working for the municipal health system of São Paulo, Brazil.

Methods: A randomized intervention study enrolling 29 professionals in the intervention group and 27 in the control group. Interviewers were trained in advance to collect data on the professionals working at health centers, before and 2 months after the intervention. Three research instruments were used, the first was to assess the profile of each professional, the second assessed their knowledge and the third was a clinical observation protocol. Analysis was performed using the Kruskal-Wallis test for independent samples and the Tukey method.

Results: The results for the knowledge questionnaire showed improvements in the intervention group ($p < 0.001$) for the whole questionnaire and for questions on breastfeeding ($p = 0.004$); HIV and infant and young child feeding ($p = 0.049$); complementary feeding ($p = 0.012$); and counseling in infant and young child feeding ($p = 0.004$). In terms of performance, it was observed that the intervention group had significantly improved their dietary anamnesis after the intervention ($p < 0.001$).

Conclusions: This course effectively promoted an increase in knowledge and improvements in dietary anamnesis performance, but the same was not true of counseling skills.

J Pediatr (Rio J). 2008;84(1):75-82: Child nutrition/education, health personnel, intervention studies, effectiveness, breastfeeding.

Introduction

Several initiatives have been implemented to retrain health professionals in counseling, which is a technique that can be described as a process of active listening, that is personalized and client-centered, and which presupposes the capacity to establish a relationship of trust between the interlocutors, aiming to recover internal resources in order that they are able to see themselves as subject to their own health and transformation. Stimulation of the individual's autonomy

so that they can solve their problems is related, to a certain extent, the Theory of Client-Centered Counseling, developed by Carl Rogers.¹ It includes three components: emotional support, educational support and risk assessment, favoring reflection on values, attitudes and behavior related to the subject being dealt with.² This methodology, as applied to training on infant and young child feeding, aims to strengthen mothers or carers so that they become capable of taking the correct decisions with respect to children, and is the basis of

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The present study is part of the doctoral thesis entitled "Aconselhamento em alimentação infantil - avaliação de uma proposta da Organização Mundial da Saúde para capacitação de profissionais de saúde da cidade de São Paulo" (Infant and young child feeding counseling: evaluation of a World Health Organization proposal for the training of health professionals in the city of São Paulo), presented at the Graduate Program in Sciences, Coordenadoria de Controle de Doenças, Secretaria de Estado da Saúde de São Paulo, São Paulo, SP, Brazil, in August 2006.

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three World Health Organization/ United Nations Children's Fund (WHO/UNICEF) courses: breastfeeding counseling,³ HIV and infant feeding counseling⁴ and complementary feeding counseling.⁵

These are being implemented in several countries, after having been tested in different cultures (South Africa, Ghana and Jamaica), with the objective of making them appropriate for widespread use. To further facilitate their use, the WHO recently took the initiative of collecting their content into a single course entitled, "Infant and young child feeding counseling: an Integrated Course." and which will be referred to here as the, "Integrated Course."⁶ Several different studies⁷⁻¹⁶ have analyzed courses that included the subject of counseling, with favorable findings, but all of them were dealing with breastfeeding only.

The Integrated Course brings together information on the complementary feeding of children from 6 to 24 months, on feeding children of HIV-positive mothers and on breastfeeding.

The course also contains other elements of the theory of human communication and professional-client interpersonal relationships, as instrumental in providing guidance on healthy infant and young child feeding practices, substituting models in which professionals are the repositories of knowledge and end up establishing relationships in which they have power over the patient, impeding effective therapeutic communication.¹⁷ There are many references to investment in educational processes, focusing on improving professional-client communication as a basis for the development of, "the skills for good listening and learning."¹⁸⁻²¹

In practice, health professionals have certain difficulties in keeping up-to-date with relation to infant and young child feeding, especially due to the lack of investment by the public sector in training that focuses on improving counseling performance. In our view, in the case of the public health system, the constant pressure to meet demands for care has made management unreceptive to experimentation in the field of permanent education, and even more so if they are unable to anticipate clear, practical results.

It was this context that prompted the study described here, the objective of which is to evaluate the effectiveness of the Integrated Course for transforming the knowledge, attitudes and practices of health professionals specialized in sexually transmitted diseases (STDs)/AIDS or working for the primary care services of the municipal health department of the city of São Paulo. This article attempts to analyze whether the training provided by the Integrated Course allows counselors to bring themselves up-to-date on infant and young child feeding and, at the same time, prepare themselves adequately to utilize counseling skills, without interfering in the life of each individual and supporting them in finding solutions that are realistic in their situation.

Methods

An intervention study was carried out in 2005 with a sample of health professionals who took the Integrated Course – intervention group (IG) – and a sample who did not – control group (CG) – all employed by the public health system of the city of São Paulo, Brazil. These professionals were assessed at two points: before, and 2 months after, intervention, with one consultation from each professional observed prior to intervention and two consultations observed post intervention.

Since the methodology of the Integrated Course limits the number of participants in each course to 24 to 30, our sample could not be larger than 30. In order to take account of possible losses, it was decided that the sample size should be around 40 cases (IG) and 40 controls (CG). This maximum was, therefore, set by the methodology of the course (which aims to make sure that everyone benefits from practical lessons).

The inclusion criteria in selecting the professionals were: pediatricians or nutritionists involved in caring for children up to 24 months of age, with permission from their management to take part and, in the case of the pediatricians, where another professional was available during the same shift. These professionals were selected from those working at services provided by the Department of Health (Secretaria de Saúde) of the city of São Paulo (DH/SP), providing primary care or specializing in STD/AIDS and where the Family Health Strategy has not been implemented, due to the fact that the professionals working at services where this has been implemented have already received increased investment in training in general.

All of the eligible health centers in the city were contacted, a total of 147: 132 Basic Health Units (UBS) and 15 STD/AIDS clinics, 63 of which agreed to participate (49 UBS and 14 specialized clinics). This represents 43% of the total, and, from these clinics, 74 professionals received permission to participate. These were then allocated by lots into the study groups, 37 in each. A variety of reasons were given for not participating in the project: the distance from the place where the course was to be held, holidays, illness and others. After being informed of the results of the randomization, some participants dropped out, leaving 31 in IG and 28 in CG (losses were due to change of jobs, health problems, permission being revoked or because they had not been chosen to take the course).

After the course, at the second observation point, there were further losses: two from IG and one from CG, due to refusal or because the participants could not be located after several attempts. In all, there were 18 dropouts (24.3%), eight from IG (21.6%) and 10 from CG (27.0%), three from specialized clinics and 15 from UBS, making a total of 15 pediatricians (83%) and three nutritionists (17.3%). In order to verify the validity of the randomization process, certain

characteristics of these professionals were compared between groups, in order to check if there were similarities between CG and IG, by applying statistical tests to some of the pre-intervention study variables: sex, age, time since qualification and length of experience with infant and young child feeding. Fisher's exact test was used for discrete variables and the Kruskal Wallis test for continual variables.

In order to apply the intervention, the teaching materials for the Integrated Course (guides for the director, facilitator and participants) were translated and adapted for the Brazilian context. The course includes 8 hours of practical sessions (4 in a maternity unit, 2 in a kitchen facility and 2 at a clinic). There are a total of 34 sessions, 8 of which are dedicated to breastfeeding, 6 to HIV and infant and young child feeding, 7 to complementary feeding 10 to counseling and 3 to general themes on infant and young child feeding, making a total of 40 hours of training.

The training team was made up of one director (a pediatrician with expertise in carrying out these courses) and 11 facilitators (pediatricians, nutritionist, nurses and psychologist) who met the pre-requisites of having taken counseling courses.

Three data collection instruments were used, all applied at the health services: the first was a questionnaire on the profile of each professional (PPQ) – self administered, with both open and closed questions on training, professional experience and working conditions; the second was a questionnaire on the practice of counseling on infant and young child feeding (IFCQ) – multiple choice questions; the last instrument was a protocol for observation of clinical consultations (CCOP) – recording the presence and frequency of certain actions during the consultation.

Interviewers had previously taken a seven-hour training course including both theory and practice, including testing and application of the instruments and, on a later date, practice consultation observations by pairs of interviewers, each blind to the scoring of the other, aimed to measure the degree of variability or concordance between them. At a later meeting, interviewers were chosen based on consistency of evaluation and how they filled out the CCOP.

For some actions or groups of actions, scores were formulated by which the value of 1 was awarded to participants who carried out all actions of a particular group and 0 to participants who failed to perform at least one of them. These were: anthropometry – weighing, measuring and filling in graphs; dietary anamnesis – frequency, quantity, consistency, preparation, who feeds and how they feed, guidance and demonstration on feeding; performance – the sum of all scores attributed in the questionnaire to all the items in the section, "Personal characteristics of the professional during the consultation," where the lower the score, the *better* the performance, with possible scores from 0 to 82; feeding – the sum

of all scores attributed to all the items in the section, "Questions on feeding," variation: 0 to 22; actions – the sum of all scores attributed to all the items in the section, "Actions," variation: 0 to 18; behavior of mother – the sum of scores attributed to the section, "Personal characteristics of the mother or carer during the consultation," variation: 0 to 15.

In order to maintain quality control, interviewers were kept blind to the results of randomization, although some professionals ended up revealing their status – intervention or control; the interviewers were selected carefully and "calibrated" for consistency of observation of a single consultation, pre-tested and standardized instruments were used and data were double-input to the database.

In order to analyze the professionals' knowledge, scores were attributed to each of the four topics in the IFCQ – breastfeeding; HIV and infant and young child feeding; complementary feeding and counseling, plus an overall score. These scores were compared by time of assessment (1 – immediately prior to the course and 2 – after the course, immediately after and 2 months after) and by group (IG or CG). For each participant the differences between the prior scores and the mean of the two post-intervention scores were calculated: if the difference was less than zero, this signified an increase in knowledge, if greater than zero, this indicated a loss of knowledge and, if zero, there had been no change. These scores were described, by group, as minimum and maximum values and the median of the differences. The Kruskal-Wallis test was used for independent samples (CG vs. IG). Results where $p < 0.05$ were considered statistically significant.

For the analysis of performance, according to the CCOP scores, the items observed were classified into four domains: A – counseling skills; B – dietary anamnesis; C – nutritional assessment and guidance; and D – reaction of mother to professional. A score was attributed to each domain to represent a synthesis of what was expected for each theme. For example, for the *counseling skills* domain, scores varied from 1 (constantly) to 5 (never) and the mean score of observations was taken for each domain.

In order to compare the behavior of the groups, we employed analysis of variance for repeated measures, by observation point (1 or 2*) and by group (CG or IG). When necessary, the Tukey method was used for multiple comparisons.²² Considering the weightings given to each possibility of classification of the observation – 1 (constantly) to 5 (never); 0 not assessed –, the lower the score, the better the professional's assessment.

This project was approved by the Research Ethics Committee of the DH/SP. Free and informed consent forms were signed by the professionals and the mothers.

Results

The results below relate to 56 professionals: 29 in IG and 27 in CG. The variations in some of the totals are the result of incomplete information.

When verifying the randomization, no differences were identified between IG and CG for any of the variables analyzed (Table 1). Therefore, it is considered that, despite the losses, the process was adequate and resulted in two similar groups.

Of the 56 participants who remained at the end of the study, 23 are nutritionists and 33 are pediatricians. The majority (94.6%) are female, and the predominant age group was from 40 to 49 years (66%). A significant proportion of these participants (64.3%) have been trained for more than 21 years, having a great deal of experience with infant and young child feeding, and 64.3% have worked in the area for more

than 11 years. The proportion of individuals whose knowledge improved was greater in the IG (89.7%) than in the CG (33.3%) ($p < 0.001$).

It was observed that the proportion of individuals whose knowledge had increased occurred in all topics assessed: breastfeeding – IG (79.3%) and CG (37%) ($p = 0.004$); HIV and infant and young child feeding – IG (48.3%) and CG (18.5%) ($p = 0.049$); complementary feeding – IG (69.0%) and CG (37.0%) ($p = 0.012$); counseling – IG (51.7%) and CG (22.2%) ($p = 0.004$), as illustrated by Figure 1, and statistically significant difference were observed between the groups. Multiple comparisons indicated statistically significant difference between the groups at the second point (post-intervention) and between observation points as well, 1 and 2*, in the IG. In all of these cases $p < 0.001$ was observed.

In order to compare the performance of the professionals during clinical consultation, graphs of mean profiles were build.

Table 1 - Comparison between control and intervention groups for some of the discrete and continual variables (São Paulo, SP, Brazil, 2005)

Discrete variables	Groups				Total		p*
	Control		Intervention				
	n	(%)	n	(%)	n	(%)	
Sex of professional							
F	26	(92.9)	28	(90.3)	54	(91.5)	0.549
M	2	(7.1)	3	(9.7)	5	(8.5)	
Total	28	(100.0)	31	(100.0)	59	(100.0)	
Performs anthropometry							
0	3	(11.1)	7	(22.6)	10	(17.2)	0.212
1	24	(88.9)	24	(77.4)	48	(82.8)	
Total	27	(100.0)	31	(100.0)	58	(100.0)	
Performs dietary anamnesis							
0	26	(92.9)	29	(93.5)	55	(93.1)	0.654
1	2	(7.1)	2	(6.5)	4	(6.9)	
Total	28	(100.0)	31	(100.0)	59	(100.0)	
Continuous variables	Groups				No answer	p [†]	
	Control		Intervention				
	n	Median	n	Median			
Age of professional (years)	26	46	31	46	2	0.975	
Time since qualified (years)	28	22	31	23	-	0.988	
Experience in infant and young child feeding (years)	22	19	27	20	-	0.762	
Performance* (from 0 to 82)	28	39	30	37	1	0.651	
Feeding* (from 0 to 22)	28	09	31	09	-	0.865	
Actions* (from 0 to 18)	28	12	31	11	-	0.476	
Behavior of mother [‡] (from 0 to 15)	28	07	31	08	-	0.667	

* Fisher's exact test.

† Kruskal-Wallis test.

‡ Measured before intervention.

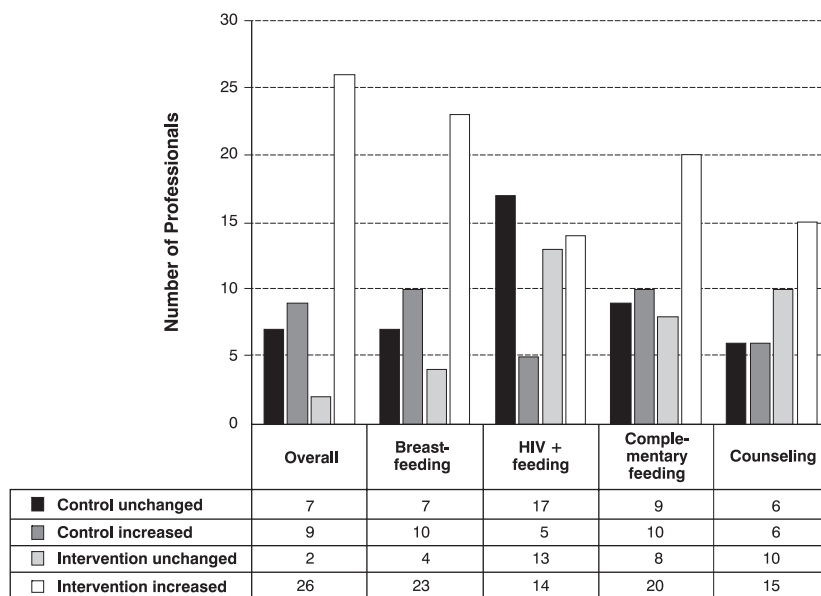


Figure 1 - Comparisons between the performance of the professionals in the control and intervention groups in terms of overall knowledge and information on breast-feeding, HIV and infant and young child feeding, complementary feeding and counseling (São Paulo, SP, Brazil, 2005)

With relation to domain A (counseling skills), the data suggest that variations were equal in the groups at each point, before (1) and after the intervention (2). The scores for this domain are mildly inferior at the second point in the IG. For domain B (dietary anamnesis), in general, when the groups were compared at each point, apparently, before training the professionals exhibited the same performance, on average. However, after training, the mean scores of those professionals who had been trained indicate improved performance (Figure 1).

With relation to domain C (nutritional assessment and guidance), in general it was observed that, on average, the CG exhibited evaluation and guidance scores that were worse than the IG at both observation points.

With relation to the results of domain D (reaction of mother to professional), it was observed that the mean scores are very close together and that the CG exhibits a mild increase in scores for mothers' reaction to the professional between points 1 and 2*; in the IG the opposite took place: the scores at point 2* demonstrate a tendency for the scores of those who went on the Integrated Course to improve. However, considering the variability observed, these figures cannot really be said to be different.

Analysis of variance for repeated measures was used to compare the behavior of the groups during clinical consultations.²² Domain B was the only area to exhibit a statistically significant interaction between observation points and groups ($p < 0.001$). Therefore, it can be stated that the groups

behaved differently over time in relation to dietary anamnesis (Figure 2).

The results of multiple comparisons allow us to state that the only statistically significant differences detected occurred when comparing points 1 and 2* for the IG ($p = 0.032$) and when comparing CG and IG at point 2* ($p = 0.008$). In other words, while the mean CG scores were constant over time, the IG scores improved (Table 2).

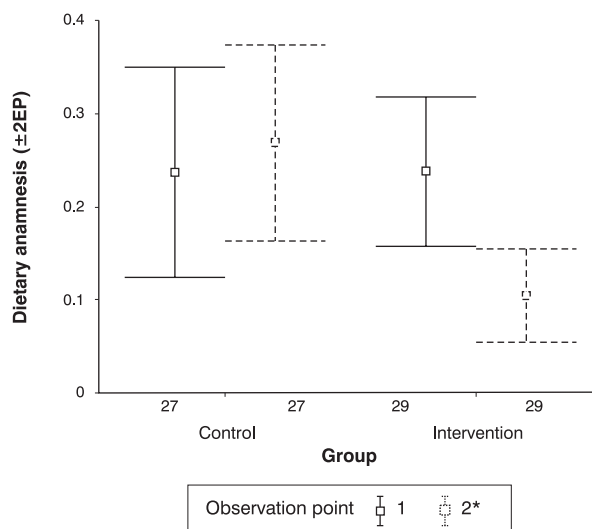


Figure 2 - Mean professional performance profiles during consultations, for dietary anamnesis, by group (intervention or control) (São Paulo, SP, Brazil, 2005)

Table 2 - Summary means of the performance of the professionals during consultations descriptive levels of the analysis of variance employed for each of the domains observed, by group (intervention or control) (São Paulo, SP, Brazil, 2005)

Domain	Time	Group	Mean	Standard deviation	Source of variation		
					Time	Group	Time-Group
A) Counseling skills	1	Control	2.42	0.59 (1.53-3.88)	< 0.001	0.225	0.122
		Intervention	2.38	0.51 (1.59-4.12)			
	2*	Control	2.22	0.52 (1.38-3.71)			
		Intervention	1.96	0.50 (1.27-2.85)			
B) Dietary anamnesis	1	Control	0.24	0.29 (0.00-0.86)	0.137	0.131	0.018
		Intervention	0.24	0.22 (0.00-0.71)			
	2*	Control	0.27	0.27 (0.00-0.83)			
		Intervention	0.10	0.13 (0.00-0.50)			
C) Nutritional assessment and guidance	1	Control	0.53	0.22 (0.00-0.89)	0.906	0.042	0.996
		Intervention	0.44	0.23 (0.00-0.86)			
	2*	Control	0.52	0.14 (0.27-0.78)			
		Intervention	0.44	0.19 (0.13-1.00)			
D) Mothers' reactions to professionals	1	Control	2.44	0.69 (1.00-4.00)	0.830	0.674	0.605
		Intervention	2.44	0.75 (1.00-3.67)			
	2*	Control	2.48	0.60 (1.17-3.83)			
		Intervention	2.36	0.57 (1.50-3.83)			

* Observation point 2: mean of the two observations carried out after the intervention.
Control: n = 27; Intervention: n = 29.

Discussion

The results of this study demonstrate that the Integrated Course was effective in increasing the knowledge of professionals about counseling in infants and young child feeding, breastfeeding and complementary feeding.

In terms of changes in professional performance resulting from the intervention, the results demonstrate significant improvement only in the practice of dietary anamnesis, and not in counseling, mothers reactions or nutritional assessment and guidance. In the case of counseling, which was the primary object of this intervention, it is worth noting that there was some improvement in the IG, although not a significant one.

It is important, however, to take into account certain limitations of this study: the sample that was initially expected suffered losses, which took place at different stages, and

which are understandable in the context, not entirely favorable, of the city of São Paulo and its health system. Although we did restrict ourselves to the number of participants recommended by the course itself and even though randomization was successful, it was not possible to maintain equal representation of the different professional categories (pediatricians and nutritionist). In the final configuration, this disproportion was of 23 nutritionists to 33 pediatricians – greater in the CG than in the IG. Although it had not been our objective to compare the behavior of these categories, it cannot be ignored that there are significant differences, both in terms of training and in terms of daily practice relating to infant and young child feeding, and, having restricted the study to these categories, any discussion of how other professional categories would react to the same intervention is ruled out.

One could also question whether the losses were professionals who were less interested in the themes of the Integrated Course, which would have biased our results to *more*;

but one could equally imagine the opposite, that the losses included many who already knew about the theme and were therefore uninterested in studying further, which would have biased our results to "less." Since the data on the professionals who dropped out or refused is not available, it is not possible to state what type of bias may have existed, if any.

This was the first opportunity at which the Integrated Course has been assessed, with its current format and purpose. There are, however, in the literature studies with analogous references, whose results could be compared.^{7,10-13,15,23-26}

Another study carried out with professionals from São Paulo, aiming to assess the WHO/UNICEF Breastfeeding Counseling Course demonstrated a significant improvement in counseling skills. In contrast with our study, however, that one was developed to deal solely with the theme of breastfeeding. It was observed that, immediately after the course, the participants' knowledge and skills in clinical management of breastfeeding and counseling significantly improved, in relation to those of the control group, and that this was repeated 3 months after intervention.¹⁵

Similar findings can be found in the results of studies undertaken in the United Kingdom,¹² Bangladesh,¹⁰ Ghana,⁷ Mexico¹³ and Brazil,¹¹ but always in interventions that, while including counseling, give priority to just one feature (or phase of life) of child nutrition, without including special dietary situations, such as HIV/AIDS. With relation to the Integrated Course, the subject of this study, while it may be considered that there were few gains in counseling skills, the good results achieved in general knowledge on infant and young child feeding and dietary anamnesis may represent a welcome improvement to what is currently found in daily practice.

This evidence emphasizes the importance of carrying out actions relating to counseling on infant and young child feeding that integrate content, in the form of permanent practices, to child healthcare policy, highlighting concern with constantly updating professional's training.

The fact that this project was carried out with health professionals who are already working for a large scale institution such as the DH/SP and in a city with the Metropolitan characteristics of São Paulo, demonstrates its potential for implementation in and adaptation to more circumspect circumstances.

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