

The evaluation of Mothers' participation project in children's growth and development process: Using the CIPP evaluation model

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ABSTRACT

Background: Assessment of national children's growth indicated a high prevalence of growth failure among them. Many previous projects have studied the children's growth and nutrition status; but most of them leave it without evaluation. The aim of this study was to evaluate Mothers' Participation Project that carried out in Isfahan after passing two years. **Materials and Methods:** In this descriptive and summative evaluation study, 90 mother and child pairs were enrolled. They were studied in two case and control groups. We used CIPP Evaluation Model (Context, Input, Process, Product). Data collected using children growth chart and questionnaire was used in the project. Obtained data were analyzed by nonparametric statistical tests. **Results:** The results showed significant differences between the two groups in following items; mean of maternal self-esteem ($P < 0.001$), maternal performance in training others ($P = 0.006$), weekly study time ($P = 0.004$), frequency of mothers participation in education programs ($P = 0.002$), their knowledge about the growth monitoring card ($P = 0.03$), their ability in drawing growth curves ($P < 0.001$), mothers knowledge about types of growth curves ($P = 0.001$) and the objectives of growth monitoring ($P < 0.001$). **Conclusion:** Considering the sustained improvement of maternal knowledge and function regarding children's growth and development after two years of participation in the project, the performance of CIPP model was confirmed in this field.

Key words: Children's growth, CIPP evaluation models, evaluation, education, mothers' participation

INTRODUCTION

In order to achieve development, society requires healthy

and capable individuals. Meanwhile, in order to achieve sustainable development in the future, considering children's health is of special importance.^[1-3]

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In Iran, approximately 75 % of children below five have growth failure almost begins from six months old and in 18 months old reaches its peak mainly caused not only by diseconomy, but also by unawareness and inappropriate performance of parents. However, the awareness of parents, especially mothers from the stages of child development and the circumstance of optimal nutrition are important and critical in promoting child's development and prevent from nutritional short stature and increase the opportunity of child to enjoy a healthy and active life in adulthood.^[4,5]

The results of children growth in 1998 indicated that 15.4

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% of children under five (800,000 children) suffer from moderate to severe short stature, 10.9 % suffer from moderate to severe underweight (540,000 children) and 4.9 % of them (170,000 children) suffer from moderate to severe cachexia (thinness).^[6] The similar study in Isfahan (Isfahan, as the capital of Isfahan province, is one of central cities in Iran) showed that one in every nine children had moderate to severe underweight and one in every 3-4 children had mild underweight. Approximately 37 % of mothers are not familiar with growth monitoring chart and 70 % of them do not a correct interpretation from their child's weight curve.^[7]

Achieving health is considered as an important challenge in the third millennium. Establishing a healthy society and overcoming complicated health and social problems requires participatory approaches and solutions and keep the society and health organizations together to use their capabilities and social resources to recognize needs and solve health issues.^[8] Accordingly, the mothers' participation project conducted in Azadegan, Isfahan, Iran in 2003. This project aimed to draw mothers' participation in order to improve growth and nutrition of children implemented based on CIPP (context, input, process and product) model. CIPP is of the best practical and comprehensive models designed to promote quality. It helps managers and planners to prioritize the needs based on a systematic approach by considering to the background, inputs, available resources, process and outcomes and also present the resources in their best services and activities by constant monitoring the program activities.^[9]

Mothers' participation Project was designed and implemented in a community based trial. The studied mothers were the mothers with children under or equal to three years. This project could also have fruitful results at the same year.^[10,11]

In past, many projects have been done about growth and nutrition of children; however, most of them certainly left the project without assessment and evaluation of results. Assessment means dynamic research about characteristics and advantages of a program as well as its efficacy and efficiency about the conducted projects. Thanks to assessment, the structure and organizing the projects can be analyzed and their strength and weak points can be identified and thus it can make it easier to achieve objectives and goals.^[12] Therefore, considering to the importance of monitoring growth and development of children and despite that 10 percent of Iran's population are children under 5, it is necessary to address various fields of children health as well as conducted projects in this regard. Implementation of this study will show us how much receiving CIPP model can play role in promoting educational objectives and sustainable changes in mothers' participation in process of children growth and development.

MATERIALS AND METHODS

This was a descriptive study based on evaluation studies form. The study population included the mothers with two to five-year-old children covered by Azadegan Health

Care Centers (Isfahan, Iran) who participated in Mothers' Participation Projects in 2003-2004. Moreover, in order to control the effect of time confounding factors (passing two years since study had been done) and ensuring about the obtained results and also in order to connect the results to the conducted educations in Mothers' Participation Project, an adjusted control group was used along with the studied group in Ghaemeh Health Care Center which was similar to it geographically and culturally. Sampling in participation project was based on census sampling and out of the entire participants, 30 pairs of mother and child were enrolled in the study. In order to compare in the control group, 60 pairs of mother and child non-randomly and adjusted with the trained group, were enrolled in the study.

Data collection tools included child growth monitoring card and an inventory used in Mothers' Participation Project consisted of seven demographic questions, Cooper Self-Confidence Inventory and 20 questions about mothers' participation (willingness of mothers to solve the problems and initiative in life, mean time of mothers' studying per week about improvement of growth and children nutrition and mothers' performance about educating to relative and close friends about growth and nutrition), 23 questions about various fields such as having child growth monitoring card and awareness from the subsequent referral time for child growth monitoring. Validity and reliability of the questionnaire in the mentioned project were done and its reliability obtained 70 % through Cronbach's alpha.

After necessary coordination with all the study subjects through phone call in order for their participation in the study, their were invited and were familiar with the study objectives through interviewers and their consent also was obtained and thereafter, the data were collected through interviewing and completing the questionnaires, growth monitoring card and mothers' performance.

Data analysis was done through Software SPSS version 15 (SPSS, Inc., Chicago, IL) and by descriptive statistics and independent t-test, paired t-test and non-parametric tests. $\alpha = 0.05$ was considered as a significant level for all the tests.

RESULTS

Mean age of mothers was 27.32 ± 4.31 with 20 and 40 years as the youngest and oldest mother. Most of the mothers (97.5%) were housekeeper and 52.5 % of them were high school graduates; and no significant difference was seen in all the mentioned items between mothers participated in the project and other mothers (control group).

According to the data of Table 1, there was no significant difference in mean score of self-confidence ($P = 0.68$), performance about educating other mothers ($P = 0.34$), frequency of participation in educational programs ($P = 1$), familiarization with Growth Monitoring Card ($P = 1$) and awareness from growth curves ($P = 0.12$) in the mothers

participated in the project after the intervention and two years after the educational intervention. In addition, the frequency of informed mothers about objectives of growth monitoring as well as mean duration of studying per week, there was a significant difference after the intervention and two years after it ($P = 0.03$; $P < 0.001$ respectively). While the frequency of mothers with appropriate performance about growth curve showed a significant reduction two years after the educational intervention compared to the time immediately after it ($P = 0.02$).

Comparing the factors related to individual and social capabilities of mothers in the group participated in the project with the control groups showed that mean score of self-confidence ($P < 0.001$), performance in educating others ($P = 0.006$), mean duration of study per week ($P = 0.004$), frequency of participation in educational programs ($P = 0.002$), frequency of mothers familiarized with Growth Monitoring Card ($P = 0.03$), appropriate performance about drawing the growth curves ($P < 0.001$), frequency of informed mothers about types of growth curves ($P = 0.001$) and frequency of informed mothers about objectives of growth monitoring ($P < 0.001$) showed a significant difference between mothers participated in the project with the control groups [Table 2].

There was a significant difference in amount of mothers' participation in educational programs hold in health care centers in the two studied groups ($P = 0.002$); i.e. 100 mothers

participated in the project had an active participation while this was 72.7 % for other mothers.

Evaluating children growth of mothers participated in the project in different situations of the project showed no significant difference after two years and immediately after it. Furthermore, in the group of participated mothers in the project, 3.3 % of children had growth failure, 6.7 % had growth impede (stunting) and 13.3 % had slow growth; and in the control group, 1.7 % of children had growth failure, 10 % had growth impede, 23.3 % had slow growth and 65 % had appropriate growth that according to Wilcoxon test, there was no significant difference between the children in the two groups.

DISCUSSION

Considering that mothers act as informed and constant manages in a fixed system such as family and try to improve the individual, social and mental health of their children and also given that these managers cannot be replaced -as many studies have indicated- the more we can empower and increase their motivation, the more they can promote physical and mental status of their children.^[13,14] Meanwhile, assessment subject, as an integral component of any program, has been given less attention in health programs. In line with this, conducting the present study and providing its results on assessment of its effect on growth and health of children

Table 1: Reviewing the factors related to socio-individual capabilities of mothers participated in the project immediately and 2 years after intervention

Variables		After the intervention	Two years After the intervention	Test results
Mean score of mothers' self confidence	Mean SD	107.53 12.67	103.2 9.7	$P = 0.68$
Mothers' performance in educating others	Mean SD	2.53 0.63	2.46 0.62	$P = 0.34$
Mean duration of studying per week	Mean SD	105 16.75	232.72 18.23	$P < 0.001$
Frequency of participation in educational programs	Number Percent	30 100	30 100	$P = 1.00$
Mothers familiar with growth monitoring card	Number Percent	30 100	30 100	$P = 1.00$
Mothers with appropriate performance to draw growth curves	Number Percent	29 96.7	16 53.3	$P = 0.023$
Mothers informed about types of growth curves	Number Percent	22 73.3	18 60	$P = 0.125$
Frequency of informed mothers about objectives of growth monitoring	Number Percent	20 66.7	26 86.7	$P = 0.031$

Table 2: Comparing the factors related to socio-individual capabilities of mothers participated in the project with control group 2 years after intervention

Variables		Participated mothers in the project	Mothers of control group	Test results
Mean score of mothers' self confidence	Mean SD	103.2 9.7	92.8 8.2	$P < 0.001$
Mothers' performance in educating others	Mean SD	2.46 0.62	2.12 0.95	$P = 0.006$
Mean duration of studying per week	Mean SD	232.72 18.23	81.9 14.8	$P = 0.004$
Frequency of participation in educational programs	Number Percent	30 100	43 71.67	$P = 0.002$
Mothers familiar with growth monitoring card	Number Percent	30 100	55 97.1	$P = 0.03$
Mothers with appropriate performance to draw growth curves	Number Percent	16 53.3	15 25	$P < 0.001$
Mothers informed about types of growth curves	Number Percent	18 60	10 16.7	$P = 0.001$
Frequency of informed mothers about objectives of growth monitoring	Number Percent	26 86.7	19 31.7	$P < 0.001$

made researchers to review the efficacy of CIPP Model in establishing constant and sustainable changes in mothers participated in the project.

According to the obtained results, the mothers participated in the project had a constant situation in having self-confidence, educating other relatives and close friends about children growth and nutrition, the amount of participation in educational programs in health care centers, having growth monitoring card, awareness and knowledge toward growth monitoring card and growth curve drawing, and this indicated the effect of provided educations based on CIPP Model which improved the mentioned situations and also caused sustainability of them over time. Previous studies have shown that participation of women in educational programs increased the self-confidence of participants and also had an effective role in changing their attitudes and promoting the health habits over time for other people too.^[15] In addition, previous studies showed that participating mothers would have long-term effects on their children. Thus, Shure in a longitudinal study reviewed the behavior of mothers trained about problem solving for three years. The results showed that mothers who underwent education for problem solving showed less behavioral problems compared with the control group.^[16]

Mean duration of studying per week for two years after the educational intervention significantly was more than the time immediately after the intervention which this can indicate increased interest of mothers toward studying about children growth and nutrition during the passed time from the intervention and its reason can be attributed to the conducted educational intervention based on CIPP Model caused mothers to be more interested and sensitive for studying and obtaining more information about children growth and nutrition; and not only this factor sustained over time, but also had an considerable increase. In the study of Manandhar *et al.*, two years after the educational intervention also participated mothers showed higher willingness to receive information about periodical and health cares compared with the control group.^[17]

In terms of mothers' information about growth curves and appropriate drawing of it, although the results indicated decreased number of mothers in the participatory group -which can be due to lack of reminding in some mothers over time-, the participated mothers had higher frequency in terms of awareness toward the items.

The frequency of mothers about growth monitoring objectives significantly was higher in two years after the intervention than immediately after it which can indicate appropriate sensitization of mothers toward growth monitoring objectives based on CIPP Model which actually caused uninformed mothers to study more and increase their knowledge about growth monitoring objectives and try to promote them; while such a situation was not seen in other mothers of the control group. Connecting a relationship with mothers and role of their awareness from objectives would have an important role in

their future performances. In studies conducted in Thailand, it was determined that connecting with mothers and informing them about interventions' objectives had an effective role in development of their society's health over time.^[18]

In terms of children growth status, the results indicated sustainability of growth in children's growth so that the good increase mothers' participation project had on children's growth status, was maintained ever after passing two years from the project. Although there was no significant difference in reviewing and comparing the two groups of mothers in various status of growth, it seems that implemented activities and follow-ups by health staff caused lack of a significant difference about children's growth status.

There were some limitation in conducting this study most importantly unavailability to the participants due to migration of some of them which caused reduction of the number of them.

Finally, according to our knowledge, the used model in this study has not ever been applied in Iran and the world to promote children's growth; however, the effects of mothers' participation has been proved in many studies.^[17-19] Nevertheless, according to the obtained results, with a systematic approach and step by step monitoring about drawing the attention of mothers to participate, the mentioned model promoted the studied variables in long-term period.

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