

Review Article

Tawana project-school nutrition program in Pakistan- its success, bottlenecks and lessons learned

Salma Halai Badruddin PhD¹, Ajmal Agha FCPS¹, Habib Peermohamed CMA¹, Ghazala Rafique FCPS¹, Kausar S Khan PhD¹ and Gregory Pappas MD PhD¹

The Aga Khan University, Department of Community Health Sciences, Karachi, Pakistan

Tawana Pakistan Project, a multifaceted pilot project (Sept. 2002 to June 2005) was funded by the Government of Pakistan to address poor nutritional status and school enrolment of primary school age girls. The core strategy was to create safe environment empowering village women to take collective decisions. Through reflective learning process women learnt to plan balanced menus, purchase food, prepare and serve a noon meal at school from locally available foods at nominal costs (USD 0.12/child). Aga Khan University partnered the government for the design, management, monitoring and evaluation of the project, 11 NGO's facilitated implementation in 4035 rural government girls' schools. Training was provided to 663 field workers, 4383 community organizers, 4336 school teachers and around 95 thousand rural women. Height and weight were recorded at baseline and every 6 months thereafter. Wasting, underweight and stunting decreased by 45%, 22% and 6% respectively. Enrolment increased by 40%. Women's' ability to plan balanced meals improved and >76% of all meals provided the basic three food groups by end of project. Government bureaucracy issues, especially at the district level proved to be the most challenging bottlenecks. Success can be attributed to synergies gained by dealing with nutrition, education and empowerment issues simultaneously.

Key Words: Pakistan, primary school, rural population, school lunch, nutrition education

INTRODUCTION

Pakistan is situated in the north-western part of the South Asian subcontinent. The state is made up of four provinces; Punjab, Sindh, North West Frontier Province (NW FP) and Balochistan; some federal units including Northern Areas; and Azad Jammu and Kashmir (AJK).

Malnutrition and low levels of education are still major problems, for girls in rural Pakistan. A recent national survey in Pakistan revealed that among girls five to twelve years of age 25% were stunted and 15% wasted.¹ In 2005 literacy rate among females of age 15 years or more in Pakistan was 36%.² In rural settings only 22% of girls above 10 have completed primary level or higher schooling as compared to 47% boys.³ Low literacy and educational achievement is associated with the low status of women and the perceived lack of benefit of girls education for their families. Childhood malnutrition and infectious disease account for a major portion of childhood mortality and morbidity.^{4,5,6} In Pakistan, malnutrition is not simply a health hazard but also a serious impediment to national development.

In the face of these challenges the Government of Pakistan implemented the Tawana Pakistan Project (TPP); a multifaceted pilot nutrition and social development project to combat malnutrition and increase school enrolment among primary school girls. This large scale program was conducted over a two year period, in 4035 girls' primary schools in the rural areas of the poorest districts of Pakistan identified from the list provided by the government. The project provided freshly prepared balanced noon meals

from locally available foods, to over 418 thousand girls at about 0.12USD/child/day. The project was similar to the model "Focusing Resources on Effective School Health (FRESH) suggested by WHO, UNESCO, UNICEF and the World Bank.⁷ This paper describes the Tawana Pakistan Project and the process whereby community women were trained and empowered to run a school nutrition program in their communities and the impact of TPP in the communities.

PROCESS

The core strategy was to create a safe environment for village women to take collective decisions. The project was managed and implemented by a consortium including The Department of Community Health Sciences of the Aga Khan University (AKU/CHS), and two arms of the Ministry of Social Welfare and Special Education; the National Implementation Unit and the Pakistan Baitul Maal. AKU/CHS provided the technical support for the design, management, monitoring and evaluation of the project.

In addition to providing technical support AKU/CHS trained and managed 11 NGO's that supported the local government and communities to implement the project.

Corresponding Author: Dr Ghazala Rafique, The Aga Khan University, Department of Community Health Sciences, Stadium Road, Karachi, Pakistan

Tel: 92- 21- 486-4887; Fax: 92-21-493-4294

Email: ghazala.rafique@aku.edu; salma.badrudin@aku.edu

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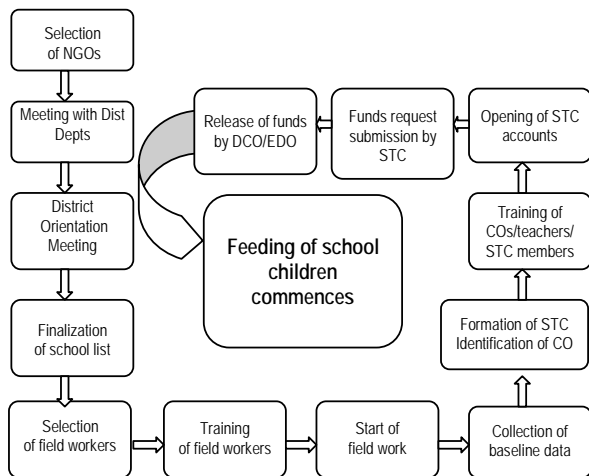


Figure 1. Schematic of implementation process

The Major Steps in the Process Followed are Shown in Figure 1.

AKU staff trained 121 Master Trainers (MT) selected from the NGO staff. The NGOs then selected field workers that were indigenous to the community; however most had no prior experience of working in and with the community. The field workers were trained by the MTs and the AKU staff. The field workers were responsible for collecting baseline data, measuring and recording the height and weight of the school children at base line and every 6 months thereafter, assisting in forming the School Tawana Committee (STC) and identifying a Community Organizer (CO) with the help of the community. The COs were paid female workers from community; 40% were not literate, 18% had a primary education and the rest had secondary education and beyond. Their responsibilities included community mobilization, supervision of anthropometry, coordination of STCs activities and financial management and record keeping in conjunction with the teacher.

Most STCs consisted of more than 12 members with a 62% participation rate. Fifty percent of the STC members were not literate. The responsibilities of the STC included overseeing the kitchen construction, purchasing necessary items, planning the monthly menus, cooking or arranging for the cooking, serving and cleaning up after meals. The members of the STCs received training on the objectives of the TPP, basic nutrition concepts and what constitutes a balanced diet. The training sessions were designed to be interactive, participatory and visually stimulating in view of the low literacy levels of the STC members. Details of Contents of the Training Programs are shown in Table 1.

Prevalence of malnutrition was assessed based on the anthropometric measurements recorded at base line and end of the project.

Malnutrition was defined using three standard indicators: stunting, underweight, and wasting. Children below -2 standard deviations from median height-for-age a reference population were defined as stunted. Similarly, children below -2 standard deviations from median weight-for-age of the reference population were defined as underweight. And children below -2 standard deviations from the median weight for height of the reference popu-

Table 1. Content of Training Modules for Members of School Tawana Committees

Module 1: Introduction to Tawana Pakistan Project (TPP)

12 sessions over 7 hours. Topics included:

- Orientation to Tawana Pakistan Project
- Importance of Participation in TPP
- Importance of nutrition and education for the girl child
- Malnutrition and its consequences
- Roles and responsibilities of the STCs
- TPP stake holders and their roles

Module 2: Organizational Skills

Seven Sessions over 3.5 hours, Topics included:

- Social Mobilization
- Communication Skills
- Conflict Resolution
- Team Work
- Leadership
- Record Keeping and its Importance
- Organization Skills

Module 3 Food, Nutrition and Balanced Diet

Six sessions over 3 hours, Topics included:

- Food groups
- Balanced diet
- Micronutrients and their Importance
- Importance of Balanced Diet for Health
- Menu Planning
- Importance of Hygiene
- Conservation of nutrients during food preparation and cooking

lation were defined as wasted.⁸ The changes in nutrition status were calculated by the number of girls for whom there was a change in the standardized nutritional status scores (Z scores).

Enrolment data was collected at baseline the thereafter quarterly at the time of the anthropometry. Percent increase in enrolment is calculated by subtracting the enrolment numbers in a school at the beginning of the project from the enrolment at the end, and dividing the difference by the enrolment before the intervention.

Over 2700 menus and 5670 menus were assessed for balance in May 2004 and January 2005. When the analysis in 2004 showed the need for improvement in menu planning skills intensive retraining for planning balanced menus was provided. In addition menu planning and purchasing guidelines were developed and distributed to the STCs as wall charts.

KAP surveys were conducted at the beginning and end of the project using both a structured questionnaire as well as Focus Group Discussions in a sample of the villages where the project schools were located.

IMPACT OF THE PROJECT

Empowerment of the community women was both a strategy and positive outcome of the project. About 94,000 community women belonging to the STCs, over 4300 community organizers and 4300 teachers and 600 field workers were trained through 3669 formal training sessions of three days each. In addition to the formal training the STC members were also mentored during the monthly monitoring visits by field workers, field supervisors and

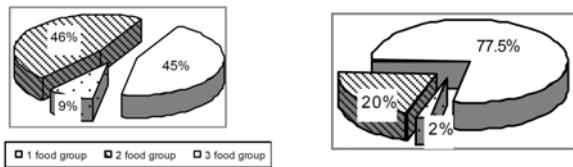


Figure 2. Improvement in Planning Balanced Menus (May 04 versus January 05). Balanced meal was defined as that which includes the three food groups essential for energy, growth, and protection from illnesses. Locally available food items were categorized into three groups for easy understanding by community women.

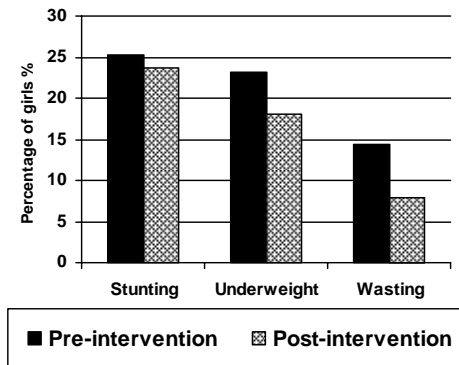


Figure 1. Percentage of malnourished girls at baseline and end of project. Pre-intervention anthropometric measurements were taken in the schools at the time of registering a girl in the program. Post-intervention is defined as a measurement closest to the end of the project and at least six months after the pre-intervention.

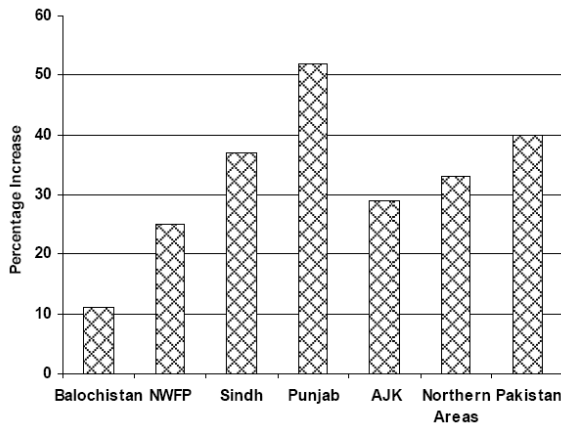


Figure 4. Percentage increase in enrolment, by province/area. Percent increase is calculated by subtracting the enrolment at the end from the enrolment at the beginning, and dividing the difference by the enrolment at the beginning.

AKU staff. Many of the STC members obtained identity cards, and for the first time opened and operated a bank account or even went out of the villages.

The ability to plan balanced menus improved over time by using strategies which included training of NGOs, mentoring of STCs, menu preparation guidelines as well as purchasing guidelines. By January 2005 over 77% of the menus included the three basic food groups, 20% included two food groups and 2.2% included only one food group. (Fig 2) The lack of the three basic food groups in many instances was due more to problems with food availability rather than a lack of knowledge on the part of

the STCs. In some of the TPP locations fresh fruits and vegetables were unavailable in some seasons, in other areas protein foods were too expensive to be provided in the designated amount of 0.12USD/child/day.

Improvement in nutritional status was reflected in the fact that wasting the most acute form of malnutrition decreased by 45% that is from 14.3% to 7.9%, the reduction in underweight girls was not as marked however the percent of girls who were underweight decreased from 23.2 to 18%. As would be expected the program had the least impact on chronic under nutrition and stunting amongst the TPP girls decreased only by 6% over the relatively short duration of the program (Fig 3).

McNemars test was run to assess for significance of the decrease in malnutrition seen. The changes in wasting were significant at the national level however Sindh and the Northern Areas did not show a significant decrease in stunting. Similarly the decrease in wasting was significant at the national level and only AJK did not record a significant decrease. All provinces showed a significant decrease in underweight. In spite of a decrease in the prevalence of malnutrition as assessed by these parameters many of the girls still fell below the WHO anthropometric standards for girls in this age group, suggesting the need for a sustained initiative to address malnutrition. Although there was no control group it is safe to assume that the decrease in the prevalence of malnutrition was due to the project as the prevalence of malnutrition has remained unchanged over the last 30 years as documented in previous national nutrition surveys.^{9, 10}

The change in enrolment at base line and at the end of the project is shown in figure 4. At the consolidated level the project showed an overall increase in enrolment of 40% by attracting un-enrolled girls who came for the feeding program to enrol in school. The average number of girls per school went up from 64 at the beginning of the project to 89 at end of project. The greatest increase of 52% was seen in Punjab which already had the highest enrolment rate amongst the provinces and the lowest increase was seen in the Balochistan which had the lowest enrolment rate at baseline. This indicates that in areas where there is low resistance to female literacy, provision of incentives impacts positively on enrolment such as in Punjab but where there is resistance to sending girls to schools even the provision of incentives does not have a significant impact on enrolment.

Results of the KAP survey conducted at baseline and at close of project showed that there was a ripple effect of the trainings on the women in the community at large as reflected in the improvement in the nutritional knowledge of the women. The analysis of interview data showed that nearly 35% of the women were able to correctly define what constitutes a balanced diet and identify the basic three food groups at close of the project as compared to only 4% at baseline (Fig 5).

There is some indication that this change in knowledge was reflected in the menus at home as well. The reported consumption of food in the homes indicated that 61.5% and 6.2% of the meals were providing two and three food groups respectively at end of project as compared to 50.3% and 3.4% at baseline. The weighted chi-square test

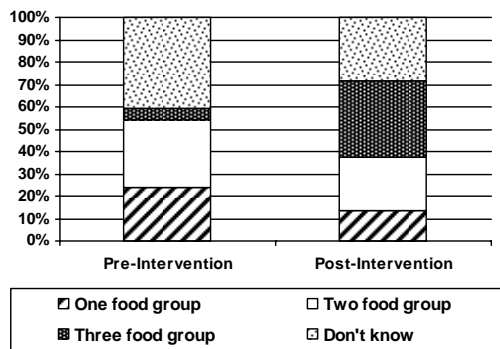


Figure 5. Improvement in Community Knowledge Regarding Basic Food Groups. Balanced meal was defined as that which includes the three food groups essential for energy, growth, and protection from illnesses. Locally available food items were categorized into three groups for easy understanding by community women.

showed that the change in food pattern was significant ($p < 0.0001$).

BOTTLENECKS

Ownership for the project was at times problematic and created difficulties in implementation. Numerous problems including the uneven flow of funds to the community can be traced to a lack of clarity in roles and ownership in a new program. Public private partnerships in the health sector on this scale in Pakistan are new and many of the difficulties encountered were due to lack to clear terms of reference and experience. Issues associated with the government bureaucracy, especially at the district level proved most challenging.

LESSONS LEARNED

1. TPP has clearly demonstrated the potential for a public-private partnership in social development in Pakistan.
2. The NGO sector is competent and willing to develop human resources in rural areas, especially the mobilization and empowerment of women.
3. Community women are capable of managing local social development programs that are based on participation and ownership.
4. Smooth implementation of the project required clear differentiation and documentation of roles of the Ministries, NGOs, and communities.
5. The scale and success of the intervention demonstrates that Pakistan has the human capital to mount an effective program on a national scale.

CONCLUSION

TPP brought together the government, NGOs and an academic institution to demonstrate that rural women could be effectively trained and mobilized to run a school nutrition program.

The project demonstrated that balanced meals can be achieved from locally available foods at nominal costs (USD 0.12/child) through training and empowerment of communities. The success of TPP was based on the synergies gained by dealing with nutrition, education and empowerment issues simultaneously.

Promoting balanced meals in schools was central to the success of this intervention. The Government has decided that the Tawana Pakistan Project will now provide packaged milk and cookies instead of freshly prepared balanced meals. Promotion of snacks, especially those made from refined flour and sugar, sends the wrong nutrition message to this vulnerable population. Packed food programs miss the empowerment aspects of the program that contributed to the success of the intervention and had its own benefits.

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AUTHOR DISCLOSURES

Salma Halai Badruddin, Ajmal Agha, Habib Peermohamed, Ghazala Rafique, Kausar S Khan and Gregory Pappas, no conflicts of interest.

REFERENCES

1. Pakistan Institute of Development Economics, Micro-nutrient Laboratories Aga Khan University and Medical Center Karachi. National Nutrition Survey 2001-2002. Islamabad, Pakistan: Planning Commission, Government of Pakistan and UNICEF, 2004.
2. Government of Pakistan, Statistics Division, Federal Bureau of Statistics Islamabad. Pakistan Social and Living Standards Measurement Survey (2004-05). 2005 June [Cited 2006, May31]. Available from: <http://www.statpak.gov.pk/depts/fbs/statistics/pshm2004-05/pshm2004-05.html>
3. World Bank. The World Bank in Pakistan: Country Brief. July2006 [Cited2006, May 27]. Available from: <http://lnweb18.worldbank.org/sar/sa.nsf/083c4661ad49652f852567d7005d85b8/e446>
4. World Health Organization. 11 Million Child Deaths Per Year: Many Can Be Prevented. Press releaseWHO/64. [Cited2006, May27]. Available from: http://www.who.int/childadolescent-health/New_Publications/IMCI/pr_64.htm
5. World Bank. World Development Report, 1997: The State in a Changing World. Washington, D.C., World Bank; 1997.
6. Children's Fund (UNICEF). Unmasking malnutrition. Progress of the Nations. Oxford University Press, New York; 1996.
7. Focusing Resources on Effective School Health: a FRESH Start to Enhancing the Quality and Equity of Education. UNESCO, UNICEF, WHO, and the World Bank, 2000.
8. World Health Organization. Physical status: the use and interpretation of anthropometry. WHO Technical Report Series No. 854. Geneva: WHO, 1995.
9. Nutrition Division, National Institute of Health, Government of Pakistan, (1988). National Nutrition Survey, 1985-87, Islamabad.
10. National Institute of Population Studies, (1992). Pakistan Demographic and Health Survey 1990/1991. Islamabad, Pakistan and Columbia, MD: National Institute of Population Studies and IRD/Macro International Inc.