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RESEARCH ARTICLE

REVITALISING IRON AND FOLIC ACID (IFA) SUPPLEMENTS FOR PREGNANT WOMEN AS A KEY COMPONENT OF THE ANTENATAL CARE (ANC) PACKAGE: PROGRAM EXPERIENCES OF A DEMONSTRATION PROJECT IN BANGLADESH

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ABSTRACT

Background: Anaemia has been a long standing public health problem in Bangladesh, particularly amongst the children and women. BDHS, 2011 showed that 42% of the women aged 15-49 years (pregnant women 49.6% and 48% lactating women) were anaemic. Nutrition International (Formerly known as Micronutrient Initiative) supported Government of Bangladesh in revitalising IFA as a key component of the ANC package through demonstration of strategies to improve the coverage and adherence of IFA among pregnant women in selected districts with the objective of reducing iron deficiency anaemia.

Methods and Materials: The program package consisted of strengthening the supply chain of the IFA supplements; capacity building of health staff in estimation of IFA requirements, monitoring and tracking adherence, behavior Change interventions for increasing adherence with a focus on improved interpersonal counselling, modifying monitoring system to track coverage and improving supportive supervision. The demonstration projects were implemented in Narsinghdi and Satkhira districts of Bangladesh. The program was assessed by a pre-post intervention study design with intervention and comparison areas in the country. Socio-demographically similar districts were considered as comparison areas.

Results: In the intervention areas, adherence to 90+ IFA tablets was found to be more than 50% and binary logistic regression revealed that among all women interviewed, those who were exposed to improved interpersonal counseling were 7 times more likely to consume 90+ IFA in the most recent end-line survey undertaken [UOR: 7.560 (95% CI: 3.850-14.486, p=0.000)].

Conclusions: Considering the positive results of the program package, as demonstrated by the program evaluation findings, it is being scaled up in 10 low performing districts of Bangladesh with a focus on improved inter-personal counselling.

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INTRODUCTION

Bangladesh with a population of about 164.7 million is one of most populous countries in Asia ranked 8thin the world (UN, 2017).

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The Nutrition International (Formerly known as Micronutrient Initiative) supported governments of Bangladesh in revitalising IFA as a key component of the ANC package through demonstration of strategies to improve the coverage and adherence of IFA among pregnant women in selected districts with the objective of reducing iron deficiency anaemia. In Bangladesh, Micronutrient Initiative Bangladesh supported the Government of Bangladesh (GoB) to demonstrate an effective

program model for increasing the coverage and particularly the utilization of IFA supplements among pregnant women. The program was piloted in two districts of Satkhira and Narsingdhi. This paper documents the program evaluation experiences and effective strategies to increase adherence to IFA supplementation in selected geographies of this two Bangladesh. Anaemia has been a long standing public health problem in Bangladesh, particularly amongst the children and women. BDHS-2011 showed that 42% of the women aged 15-49 years (pregnant women 49.6% and 48% lactating women) were anemic. BDHS, 2011 also showed that ANC visits by women increased to 68%, and among them, 55% received ANC from medically trained provider. Despite the implementation of Iron Folic Acid (IFA) supplementation program since 1988 for pregnant women by the Health and Family Planning wings of the Ministry of Health and Family Welfare (MoHFW), and the fact that ANC coverage is increasing, there has been no significant change in the anaemia levels among pregnant women in the country. However, IFA supplementation remains as the one of the few interventions available to combat anemia during the critical period of pregnancy.

Anaemia has been a long standing public health problem in Bangladesh, particularly amongst the children and women. BDHS-2011 showed that 42% of the women aged 15-49 years (pregnant women 49.6% and 48% lactating women) were anaemic. BDHS, 2011 also showed that ANC visits by women increased to 68%, and among them, 55% received ANC from medically trained provider. Despite the implementation of Iron Folic Acid (IFA) supplementation program since 1988 for pregnant women by the Health and Family Planning wings of the Ministry of Health and Family Welfare (MoHFW), and the fact that ANC coverage is increasing, there has been no significant change in the anaemia levels among pregnant women in the country. However, IFA supplementation remains as the one of the few interventions available to combat anaemia during the critical period of pregnancy. Anaemia prevention and control also features in the 1997 National Plan of Action for Nutrition (NPAN) and the National Plan of Action for Children (2004-2009). The Ministry of Health and Family Welfare has the overall responsibilities for all activities related to anaemia control in Bangladesh through the Directorate General of Health Services (DGHS), Directorate General of Family Planning (DGFP) and the National Nutrition Programme (NNP). In 2001, the Institute of Public Health Nutrition (IPHN) developed National Guidelines for the Prevention and Treatment of Iron Deficiency Anaemia, which recommend iron supplementation, dietary improvement, food fortification and helminthes control in preschool-aged children, school-aged children, adolescent girls and pregnant and postpartum women and women of reproductive age. Government is supplementing IFA through three channels which include DGHS, DGFP and revitalization of community health care initiative of Bangladesh. More recently, the Bangladesh National Micronutrient Status Survey (BNMSS), 2011-12 showed that only 26% of non-pregnant non-lactating women were anaemic and only 5% had iron deficiency anaemia indicating low levels of iron deficiency and iron deficiency anaemia. These levels are significantly lower than the assessments conducted earlier. The BNMSS 2011-12 created a discourse on the topic of iron in the ground water, which was found to be significantly associated with lower levels of anaemia. This brought to the fore, the discussion on the multi-factorial nature of anaemia.NI had started working with IPHN prior to this to demonstrate a program model to improve the effectiveness of the IFA supplementation program to reduce iron deficiency anaemia among pregnant women in 2 districts.

The program strategy focused on

- Consultative meetings with Government of Bangladesh (GoB) and other stakeholders to increase attention to the program.
- Planning meetings in the selected districts and associated sub-districts/upazilas.
- Strengthening the supply chain, particularly, estimation of IFA requirements.
- Building capacity of the field functionaries to administer supplements (containing 60 mg of elemental iron and 400 microgram folic acid) as per the national guidelines, monitoring, tracking and counseling.
- Strengthening Behavior Change Communication (BCC) particularly the Inter Personnel Communication (IPC) component.
- Reviewing and strengthening the monitoring systems to monitor receipt and utilization.

NI conducted a baseline and an end-line survey as part of the program evaluation. 93% of recently delivered mothers received at least one ANC from health care providers during midline survey compared to 80% during the baseline. 40% pregnant women reported to have received at least 90 IFA tablets at the midline compared to 35% during the baseline. 96% frontline workers reported to monitor utilization of IFA tablets among pregnant women during the midline survey in comparison to 78% at the baseline. Overall, the program demonstrated notable improvements.NI has scaled up the identified processes which have worked to 10 low performing districts of Bangladesh i.e. 5 districts in year 1 and 5 districts in year 2 and has been continuing support in all the 10 districts.

Program Description: Key program components and activities

The key program components and activities were

National level Technical Assistance

Advocacy to Government of Bangladesh (GoB)

National level technical meetings were conducted with GoB including DGHS, DGFP, and RCHCIB and other stakeholders e.g. UNICEF, WHO, ICDDRB to disseminate results of the demonstration project, emerging best practices to improve coverage and adherence and discussion on new WHO guidelines.

Review and monitoring meeting at the national level

IPHN organized meetings in years 2 and 3 to review and monitor the program. Civil Surgeons (CS), Deputy Directors of Family Planning (DDFP), Upazila Health and Family Planning Officers (UH&FPO) and Upazila Family Planning Officers (UFPO) participated in these meetingsfor assessing program progress, identifying bottlenecks and propose corrective actions.

Technical Assistance by National Consultant - Nutrition Information System

NI supported a "National Consultant-Nutrition Information System", who is based at Nutrition Information Planning Unit (NIPU) of NNS at IPHN. The consultant reviewed all existing documents regarding Monitoring Information System (MIS) of DGHS, DGFP, RCHCIB, NNP and NNS and continued to provide technical input to develop a draft of routine information collection tools and formats for NNS to be incorporated into HMIS and prepare draft guidelines of nutrition section in Bangla for incorporating into HMIS guideline. The consultant also contributed to prepare standard nutrition indicators for NNS and mainstreaming through DGHS/DGFP, RCHCIB.

District level scale-up support

Planning and advocacy meeting at district level

Planning and advocacy meetings were held among the managers of the government and non-government organization's (District level NGOs who are working respective district like BRAC, and local NGOs) for IFA supplementation program were held at the selected districts. Meetings focussed on modalities to improve coverage and adherence, create awareness on benefits, streamlining HMIS, effective monitoring and supervision. Micro-planning was undertaken at the district levels.

Capacity building of different levels of health workers

IPHN conducted training of trainers (ToT) for selected participants like CS, DDFP, UH&FPO and UFPO at the national level. Subsequently, they trained district and upazilla level service providers and their supervisors of both DGFP and DGHS. The content of these trainings focused on modalities to improve coverage, monitoring and supervision, and follow up visit/home visit for improving adherence. One time basic training were provided throughout the project period in 5 districts in first year and rest of the 5 districts in second year. Regular on the job training and capacity building was continued through the routine system utilizing monthly forums.

Facilitating IFA supply at district and health facility levels

NI facilitated IPHN, RCHCIB and DGFP for IFA procurement. IPHN procured IFA through Centre for Medical Store Department (CMSD) and send it to the districts according to the demand. District and upazilla managers reviewed the supply chain mechanism monthly and ensure availability of IFA at the facility level. The supply chain mechanism were systematically reviewed to identify bottlenecks and solve the gaps. The specifications were 60 mg elementary iron and 400 microgram folic acid which were supplied blister packets through all channels.

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HMIS in the demonstration districts has been modified to collect information on number of pregnant women (PW)/post-partum women (PPW) who visited the health facility, number of PW who received any IFA and number of PW who received at least 30 IFA tablets and stock status of IFA. Synchronization of DGHS and RCHCIB has been done. Dialogue has been initiated that the service providers of the DGFP sent reports to the DGHS in addition to sending it through their normal channel. This process was further worked upon. Inclusion of the stated indicators into the national MIS was negotiated at the national level. Both DGFP and DGHS monitored the recording and reporting through H/FPMIS system. District and upazilla managers and other supervisors supervised and monitor IFA supplementation at facility and community levels. Supportive supervision to the frontline workers to register pregnant women, provision of recommended number of IFA supplements and make follow-up home visits at the critical time periods and counseling for IFA utilization were facilitated. One NI district coordinator was deployed for 3 to 4 districts who was responsible for co-ordinating the field level activities. They facilitated coordination with the government officials at the district and upazilla levels on denominators, supply chain, monitoring and reporting on IFA for PW. The coordinator coordinated with health and family planning dept. and minimize the overlapping and gap of IFA distribution through their respective channel. They facilitated to provide mothers card (ANC card) distribution in the monthly meeting if the card is available.

Strengthening Behaviour Change Interventions (BCI) particularly Inter Personal Communication (IPC)/ Counselling

NI supported the development of a BCI strategy based on formative research and stakeholder consultations. During the demonstration phase, brochure and festoon were used. Communication materials were used by the field level Health, Population and Nutrition workers (HA, CHCP, FWA, FWV, Nurses) for undertaking IPC with the pregnant women at the health facility and also during home visits to encourage regular consumption.

Roles of Partners

Role of DGFP

- To ensure data collection from all service delivery points of DGFP for IFA supplementation program.
- To ensure training of district and upazilla managers and all field level family planning staff at district and upazilla levels.
- To procure and supply IFA tablets containing 60 mg elementary Iron and 400 microgram Folic acid in blister packets in DDS kits to district and upazilla level facilities.
- To ensure follow-up home visits by frontline workers.
- To ensure mainstreaming by inclusion of IFA receipt (coverage) and stock related data in FPMIS.
- To establish collaboration with DGHS and RCHCIB at national, district and upazilla levels.
- To collaborate with local government/city corporations to ensure service in urban areas.

Role of DGHS (IPHN/NNS)

- To ensure data from all service delivery point of DGHS and RCHCIB of IFA supplementation program.
- To ensure training of district and upazilla managers and all field level health and family planning staffs at district and upazilla levels.

- To procure and supply IFA tablets containing 60 mg elementary Iron and 400 microgram Folic acid in blister packets to district and upazilla level facilities.
- To ensure follow-up home visits by frontline workers.
- To ensure mainstreaming by inclusion of IFA receipt (coverage) and stock related data in HMIS
- To establish collaboration with DGFP and RCHCIB at national, district and upazilla levels
- To collaborate with local government/city corporations to ensure service in urban areas.

Role of NI

- To facilitate and participate in consultative meetings at national and district levels.
- To provide technical and financial assistance to implementing partners (DGFP, DGHS and RCHCIB)
- To participate and facilitate advocacy and planning meeting at the sub-national levels.
- To provide technical support in modification of training and communication materials.
- To facilitate the training of government service providers.
- To facilitate streamlining HMIS for requisite indicators of IFA supplementation program and rectify over reporting/double counting of pregnant women through all implementing partners.
- To facilitate support in monitoring and supervision.

METHODS AND MATERIALS

The demonstration program in Bangladesh was independently evaluated by adopting a pre and post intervention study design with a comparison group using quantitative methods of data collection. A baseline survey of the program was undertaken prior to initiation of program activities in early 2012 in the two selected program districts (Satkhira and Narsingdhi) and two comparison (Mymensingh and Jessore) districts. An end-line survey was conducted in April 2014. Both the baseline and end-line surveys were conducted in two intervention districts (Narsingdhi and Satkhira) and two comparison districts (Mymensingh and Jessore). The target respondents were recently delivered post-partum women with an infant less than six months interviewed about their last pregnancy. This target respondent group was considered to allow for an exposure of nine months of pregnancy to obtain information about IFA consumption. The other respondents for the survey were the health officials, service providers and workers. A total of 800 and 1,200 recently delivered mothers were interviewed in the baseline and end-line respectively. Ethical clearance was obtained from Bangladesh Medical Research Council (BMRC).

The sample size calculations for all the surveys were based on a 95% confidence level and 80% power, adjusted by a design effect of 2.0 to account for the multi-stage cluster sample selection and incremented by a factor of 10% for probable non-response. Both, bivariate and multivariate analyses were carried out. All the data analyses were performed in PASW 18.0 version. Cross tabulations between IFA adherence and interpersonal counselling was conducted to understand the association. Binary logistic regression analysis was carried out to understand the contributory influence of interpersonal counselling on IFA adherence.

RESULTS

The overall findings of the baseline and end-line surveys in selected survey districts of Bangladesh were as follows: In the intervention areas, 84% (88% in Narsingdhi and 80% in Satkhira districts) reported consuming at least 90 IFA tablets in the end-line, compared to 36% (33% and 38% respectively) during the baseline survey. In the comparison areas, 52% (73% in Mymensingh and 30% in Jessore districts) reported consuming at least 90 IFA tablets in the end-line survey compared to 46% (56% in Mymensingh and 35% in Jessore districts) during the baseline survey. The per cent of women consuming at least 90 IFA tablets increased by 55 percentage points in case of Narsingdhi and 42 percentage points in Satkhira districts compared to an increase of 17 percentage points in Mymensingh and a decline of 15 percentage points in Jessore, the comparison district. The highest percentage point increase was recorded in Narsingdhi followed by Satkhira among the intervention districts. Binary logistic regression revealed that among all women interviewed, those who were exposed to improved interpersonal counseling were 7.560 times significantly more likely to consume 90+ IFA compared to those who were not exposed to improved interpersonal counselling in the most recent survey undertaken in Bangladesh [Unadjusted odds ratio (UOR) 7.560 (95% CI: 3.850-14.486, p=0.000)].

DISCUSSION

In this program, interpersonal counselling and communication was found to be a significant predictor of increased adherence to IFA. Interpersonal communication is the process by which people exchange information, feelings, and meaning through verbal and non-verbal messages: it is face-to-face communication. Interpersonal Communication can be 1-1 (One to one communication) like; interpersonal interaction or counselling or 1-G (one to group communication) like; trainings, meetings etc. Interpersonal counselling is in the form of transaction communication model, which is different from linear or transaction model. The Transaction Model of communication is any encounter or interaction, where meaning is co-created. It is more effective than the mass media modes of television and radio E-mail and texts.

CONCLUSION

The demonstration program package including strengthening of the supply chain of the IFA supplements, strengthening government commitment, capacity building of health staff and frontline workers, behavior change interventions for increasing adherence, with a focus on interpersonal counseling and modifying the monitoring system to track coverage along with supportive supervision has shown good results in terms of increasing the coverage and adherence to IFA. Based on the improvement in adherence in IFA supplementation, the program package is being scaled up in ten low performing districts of Bangladesh with a focus on improved Inter-personal counselling.

Ethical Approval: Ethical approval was obtained from Bangladesh Medical Research Council (BMRC).

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REFERENCES

Dairo, M.D. and Lawoyin, T.O. 2006. "Demographic factors determining compliance to iron supplementation in pregnancy in Oyo State, Nigeria", *Niger J Med* Jul-Sep; 15 (3):241-4.

De Benoist, B., McLean, E., Egli, I. and Cogswell, M. (Eds). 2008. "Worldwide prevalence of anaemia 1993–2005: WHO global database on anaemia". Geneva: WHO, CDC.

Gebre, Abel, Mulugeta, Afework, Etana and Belachew, 2015. "Assessment of Factors Associated with Adherence to Iron-Folic Acid Supplementation Among Urban and Rural Pregnant Women in North Western Zone of Tigray, Ethiopia: Comparative Study". *International Journal of Nutrition and Food Sciences*, Vol. 4, No. 2, 2015, pp. 161-168. doi: 10.11648/j.ijnfs.20150402.16.

Gebremedhin, Samson, Samuel, Aregash, Mamo, Girma, Moges, Tibebu, Assefa, and Tsehai, 2014. "Coverage, compliance and factors associated with utilization of iron supplementation during pregnancy in eight rural districts of Ethiopia: a cross-sectional study" *BMC Public Health 2014*, 4:607http://www.biomedcentral.com/1471-2458/14/607.

Lacerte, P., Pradipasen, M., Temcharoen, P., Imamee, N. and Vorapongsathorn, T. 2011. "Determinants of adherence to iron/folate supplementation during pregnancy in two provinces in Cambodia", *Asia Pacific Journal of Public Health*, May; 23 (3):315-23. doi: 10.1177/1010539511403133.

Neupane, Nirmala et al., 2015. "Factors Affecting Compliance of Iron and Folic Acid among Pregnant Women Attaining Western Regional Hospital, Pokhara, Nepal". *International Journal of Research and Current Development, 2015*; 1(1): 43-57.

Stevens, Gretchen A, Finucane, Mariel M, De-Regil, Luz Maria, Christopher J, Paciorek, Seth R Flaxman, Branca, Francesco, Peña-Rosas, Juan Pablo, Bhutta, Zulfiqar A, and Ezzati, Majid, on behalf of Nutrition Impact Model Study Group (Anaemia). 2013. "Global, regional, and national trends in haemoglobin concentration and prevalence of total and severe anaemia in children and pregnant and non-pregnant women for 1995–2011: a systematic analysis of population-representative data", *Lancet Global Health*; 1: e16-25.

WHO. The global prevalence of anaemia in 2011. Geneva: World Health Organization; 2015.

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