***Original Research Article***

**Impact Assessment of the Nutrition Project in both the Rohingya Camps and Host Communities of**

**Cox’s Bazar, Bangladesh**

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| --- |
| **ABSTRACT**  **Aim:** World Vision Bangladesh is implementing the nutrition projects to address malnutrition in Cox's Bazar, targeting children under age 5 years and Pregnant and Lactating Women, both in refugee camps and host communities. The projects operate through six Integrated Nutrition Facilities and 59 community sites, adopting both curative and preventive approaches. The projects were assessed in depth against the Core Humanitarian Standards and the Sphere Standard, and their measured outcomes and outputs were evaluated.  **Methodology:** The study was designed to review the secondary nutrition program performance & the effectiveness of the interventions, and conduct a cross-sectional study using both quantitative and qualitative data collection to gain deep insight into the target population in 4 Rohingya camps and Moheshkhali and Pekua of Cox’s Bazar. We included 442 pregnant and breastfeeding women (PBW) and 452 caregivers of 0-59-month-old children. Qualitative data were obtained through FGDs-14 and KIIs-13 from the project areas.  **Result:** The program performance indicators reflected that the nutrition activities met the Sphere Standard in terms of coverage of over 100% in camps, and over 70% in the host community. Cure rate averages 98.2% in camps and 99.3% in the host community (>75%). The quantitative survey showed that the nutritional status (wasting) of the children improved from 15.1% to 11.2% at Rohingya camps and from 13.1% to 10.9% in the host community of Moheshkhali and Pekua. All mothers practiced the Infants and Young Child Feeding indicators, such as exclusive breastfeeding, 72.2% & 73.0% of mothers from the Rohingya and the host community, respectively, practiced it properly. 33.0% of mothers from the camps and 35.8% of mothers from the host community ensured the Minimum Acceptable Diet for complementary feeding for children 6-23 months. All these activities and approaches strengthened resilience through stakeholder engagement, marginalized group inclusion, and women's empowerment, which met CHS’s four core indicators.  **Conclusion:** Among the recommendations, it is critically important that male family members and local leaders be involved in community-level nutrition campaigns, ensuring community engagement, sustainability, and adherence to humanitarian standards. These initiatives can further improve the health and well-being of children and PBW both in the camps and host communities by addressing existing barriers and scaling up innovative solutions. |

***Keywords*: *Nutrition Program, Core Humanitarian Standard, Impact, IYCF, Sphere Standard***

1. **INTRODUCTION**

Globally, an estimated 123.2 million people were displaced from their homes and are living as refugees (1), and the Rohingya Refugees were one of the largest emergency responses to the forcibly displaced Myanmar National (FDMN) in Cox’s Bazar district of Bangladesh. About 700,000 Rohingya people left Myanmar in August 2017 due to the conflict situation in Rakhine State of Myanmar. Currently, 1,004,986 Rohingya refugees are living in the 33 camps, with around 164,016 children under five and 42,538 Pregnant and breastfeeding women (PBW) (2). The nutritional situation in the camp is characterized by 15.1% wasting, 41.2% stunting, and 29.0% underweight **(3).**

Recent ration cuts of 2023 in the food, both quality & quantity, have health consequences, nutritionally, the children are most affected, and more malnourished children are found in the camps. The other vulnerable groups, such as elderly persons, pregnant & lactating women, and adolescent girls, also suffer from malnutrition**. (4)**

Various nutrition‐specific interventions, such as supplementation with micronutrients, energy-balanced foods, and behavior change efforts to promote optimal complementary feeding, are effective strategies for addressing child stunting (4). However, implementing a combination of effective nutrition‐specific interventions at a 90% scale in 34 low‐ and middle‐income countries would address only 20% of the burden of child stunting **(5).**

The Nutrition Sector (NS) of Cox’s Bazar is committed to ensuring adequate, legitimate, and dignified lifesaving nutritional services in the camps and the affected host community in two upazilas. The NS partners have been providing the Outpatient Therapeutic Treatment (OTP), Targeted Supplementary Feeding Programme (TSFP), and Blanket Supplementary Feeding Programme (BSFP) in the FDMN camps, and OTP and TSF programmes in the host community, including Infant and Young Child Feeding (IYCF) and other cross-cutting issues. **(6)**

Complete package of SBC approach to breaking the social stigma and barrier targeting the audience through different methods; for example, to improve the Infants and Young Child Feeding (IYCF) indicators by providing IYCF message through health and nutrition education, group messaging at IYCF corner, Community sensitization, meetings and workshops, mother-to-mother support groups, IYCF counseling on problems mothers are facing (need-based) from IYCF corner at nutrition facilities as well as health facilities. Complementary feeding cooking demonstration for hands-on learning can change the negative behavior of the targeted audience in a positive direction. In this study, we found that 94.3% of mothers changed one of the negative behaviors related to IYCF in a positive direction. **(7)**

World Vision implements two of the major projects, Integrated Malnutrition Treatment & Prevention (IMTP) in the Rohingya camps and Improving Maternal and Child Nutrition (IMCN) in Moheshkhali and Pekua upazila, under the Bangladesh Rohingya Crisis Response in Cox's Bazar. These projects deal with critical malnutrition among under-five children and among Pregnant and Lactating Women in both the refugee camps of the Rohingya and the host communities. All WFP-UNICEF-funded activities targeted the vulnerable Rohingya communities living in Camps 5, 6, 8W, and 10 from November 1, 2023, to December 31, 2024, in addition to the host communities of Moheshkhali and Pekua. Activities were implemented through six Integrated Nutrition Facilities in camps and 59 community-based facilities in host areas. These interventions address the holistic approach of reducing mortality and morbidity associated with malnutrition. Projects use the model of Community-Based Management of Acute Malnutrition (CMAM), and Improving Maternal and Child Nutrition (IMCN) of WFP, following the national guidelines of CMAM and supporting several activities aimed at strengthening NGO-local health structures-government authorities’ collaboration for long-lasting effects to be possible.

The program focused on both curative and preventive nutrition through the Community-Based Management of Acute Malnutrition (CMAM) approach. This includes the treatment of Severe and Moderate Acute Malnutrition (SAM and MAM) via Outpatient Therapeutic Program (OTP) & Targeted Supplementary Feeding Programs (TSFP) and Blanket Supplementary Feeding Programs (BSFP). Additional components include Infant and Young Child Feeding (IYCF) support, community-based management of at-risk mothers and infants (CMAMI), micronutrient supplementation (IFA and deworming), Vitamin-A campaigns, and Growth Monitoring and Promotion (GMP). These services will be delivered across six Integrated Nutrition Facilities (INFs) in the four camps. WV followed standard protocols aligned with national CMAM guidelines and the Nutrition Sector Strategy for 2022-26 **(6)** to ensure quality treatment at the Outpatient Therapeutic Program (OTP) and TSFP, integrating all CMAM components for a holistic service delivery approach. In the host communities of Moheshkhali and Pekua, WV implemented an integrated community-based management of acute malnutrition program, with financial and technical support from the World Food Programme (WFP). This intervention is aligned with the WFP-funded Improving Maternal and Child Nutrition (IMCN) project and provided support for treating moderate acute malnutrition in children and malnourished pregnant & breastfeeding women (PBW) through supplementary feeding programs. Key activities include GMP for children under five, IYCF counselling for mothers of children aged 0-23 months, antenatal and postnatal care referrals, and SBCC activities. The project also aims to strengthen the connection between community health services and the local health system by fostering partnerships between NGOs and government health structures, as well as building the capacity of Upazila-level health services.

The overall goal of nutrition projects, therefore, is the contribution to a reduced prevalence of malnutrition and its associated risks among vulnerable populations. In this context of the Rohingya camps, it would mean a reduction in mortality and morbidity among children under five years of age, PBW, and other vulnerable groups. However, the objective in host communities goes even further-to break the intergenerational cycle of malnutrition through a mix of curative and preventive interventions. The projects have been designed to ensure increased access to quality nutrition services, promote optimal nutrition practices, and create community awareness for long-term impact.

The purpose of the impact assessment for the nutrition project in both the Rohingya camps and host communities (Moheshkhali and Pekua) will be:

* Evaluate appropriateness, effectiveness, impact, and sustainability following the Core Humanitarian Standard (CHS)
* Evaluate the impact of the nutrition program compared with the Sphere Standard and nutrition survey
* Measure outcomes and output results of the projects
* Provide recommendations based on the overall assessment.

1. **METHOD AND MATERIALS**

This study adopted a cross-sectional, mixed-methods design to assess the impact of the nutrition program for the Rohingya community as well as for the host community. The tools used both qualitative and quantitative methods to ensure a thorough assessment by cross-checking data.

* 1. **Sampling Frame:**

Households and individual beneficiaries from the refugee camps & the host community were the focus of our data collection efforts.

* 1. **Quantitative Data:**

A household survey was conducted to collect quantitative data from the project beneficiaries. This survey was tailored to gather relevant indicators and assess the effectiveness of the interventions. Quantitative data were collected from the beneficiaries by a household survey. The sample size calculator Raosoft (where confidence level is 95%, response distribution is 50%, and margin of error is 6.5%) was used to calculate the sample size for the camp.

Mathematical formula used to estimate stratum sample size

Where,

* Initial = minimum required initial sample size (before adjusting for finite population correction).
* p = an estimate of the true (but unknown) population (project participant) proportion at baseline=50% (0.50).
* Z = critical value from a normal probability distribution (Z-score corresponding to the 95% confidence level) [Z = 1.96 at 95% confidence level].
* MOE = margin of error (acceptable percentage error) = 0.065 (6.5%).
* d = Design effect, a two-stage PPS cluster sampling procedure is proposed, and in that case, the design effect might be close to two [d = 2].
* NF = Non-response factor [1.10] (assumes a 10% non-response rate).

**Table 1: Population type and quantitative sample for the assessment**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Population type** | **Camp** | | **Host** | | **Total** |
| **Target** | **Sample** | **Target** | **Sample** |
| Pregnant and Breastfeeding women (PBW)  (Screening, counseling, MtMSG, messaging, etc.) | 4,910 | 218 | 15,221 | 224 | 442 |
| Child (0-59 months), but the respondent will be the mother and caregiver. (Screening, GMP, WBW, NAW) | 20,002 | 225 | 71,030 | 227 | 452 |
| Grand Total | | 443 |  | 451 | 894 |

* 1. **Qualitative Data:**

Qualitative data were obtained through Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs).

**Table 2: Number of FGD and KII conducted**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| What | Participant type/Activity | Camp | Host | Total |
| KII | Graduated MCG/MtMSG (graduated) | 2 | 3 | 13 |
| Nutrition staff | 2 | 2 |
| GO/NGO relevant representative. | 1 | 3 |
| FGD | Cooking session, Majhi/Imam meeting, and MtMSG | 3 | 4 | 14 |
| Caregivers of the under-five children | 3 | 4 |

* 1. **Data Collection**

Data collection was done through the KoBo spring, 2024. During the entire fieldwork, the survey data were stored offline on mobile devices to handle information in a very secure manner. After the fieldwork, comprehensive Data Quality Control processes considered issues related to missing values, inconsistencies, and errors. The uploading of the data collected online was performed daily. The data was analyzed using the in-built functions in KoBo Toolbox and using advanced data analysis in Microsoft Excel.

* In the host community, staff will be responsible for evaluating other staff's catchment area, not his/her catchment area. Program staff will monitor the catchment area for data collection and ensure the assessment is done by following the guidelines. In the camp location, for access and location distance, he/she will assess his/her catchment area only.
* MEAL will conduct interviews with support from TCN/NSS.
  1. **Ensuring Reliability and Validity**

To maintain high data quality throughout the data collection process, the MEAL Team implemented the following measures:

* All data collection tools were provided in English to facilitate understanding.
* Enumerators were trained beforehand in data collection with a lot of emphasis on the tools to be used and the eloquent use of the local language.
* Design tools consistent, user-friendly, and structured, allowing for minimal errors to maintain logical consistency.
* Pre-test tools and refining based on feedback received during the pilot phase to make them functional.
* Collected data was systematically reviewed and necessary corrective measures taken without wasting time in case of any inconsistencies or lack of certain information.
* After finalization of the data collection into the final database, the errors or missing information in the data collection will be minimized.
* The tool should not include irrelevant questions that are not needed, since the data collection will consume time for both qualitative and quantitative assessments.
  1. **Data Collector and Capacity Building**

The data collection team consisted of IMTP (Camp) CFM, CNS, Site Supervisors, as well as IMCN (Host Community) TCN, UNS, AUNS, and other field-level staff. These individuals were carefully selected based on their experience and familiarity with the local context. To ensure the effectiveness of data collection, the MEAL team conducted comprehensive orientation sessions for the team, supported by the Deputy Program Manager (DPM) and Project Coordinator (PC). The training sessions covered:

* Proper usage of data collection tools and the KoBo Toolbox application for household surveys. Also shows what we expect from the FGD and KII format.
* Communication techniques for engaging with diverse populations, including culturally appropriate approaches.
* Detailed instructions on ethical considerations, such as obtaining informed consent and ensuring participant confidentiality.
* Pilot testing of the tools to familiarize the team with the process and address any potential challenges.

The orientation ensured that all team members were proficient in their roles and confident in handling the data collection tools. Ongoing support and supervision were provided during the fieldwork to address issues in real-time and uphold data quality standards.

1. **RESULT** 
   1. **Nutrition Program performance assessment by evaluating the target vs achievement**

We reviewed the secondary data from the regular program, such as register, daily, weekly & monthly reports, and evaluated the program performance against the program target.

**Table 3: Evaluation of nutrition program activities performance**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Indicators** | **Camp** | | | **Host** | | |
| **Target** | **Achievement** | **%** | **Target** | **Achievement** | **%** |
| Community MUAC Screening of U5 | 19,680 | 20,002 | 102% | 73,934 | 71,030 | 96% |
| Community MUAC Screening of PBW | 4,851 | 4,910 | 101% | 19,758 | 15,221 | 77% |
| Growth Monitoring and Promotion (GMP) | 17,712 | 21,000 | 119% | 81,163 | 71140 | 88% |
| Number of MAM children admitted in TSFP | 7,506 | 5,347 | 71% | 9,370 | 9.728 | 104% |
| Number of MAM PBW admitted in TSFP | 441 | 446 | 101% | 4,057 | 4,068 | 100% |
| Number of SAM children admitted to OTP | 1539 | 1345 | 87% | Not Applicable | | |
| Number of children 6-23 months admitted to BSFP | 6553 | 5247 | 80% | Not Applicable | | |
| Number of children 24-59 months admitted to NSEP | 10022 | 11389 | 114% | Not Applicable | | |
| Number of PBW admitted to BSFP | 5539 | 4645 | 84% | Not Applicable | | |
| IYCF One-to-one Counselling to PBW and caregivers | 4,100 | 5,359 | 105% | Not Applicable | | |
| Admission to MAMI Care Pathway | 1,199 | 1,249 | 104% | Not Applicable | | |
| IYCF group Messaging to PBW | 11,863 | 8.968 | 75.6% | 44,378 | 39,841 | 90% |
| Mother to Mother Support Group (MtMSG) | 144 | 144 | 100% | 59 | 59 | 100% |
| Vitamin-A Campaign for children 6-59 months | 19,680 | 19,983 | 102% | 73934 | 93629 | 127% |
| Deworming Campaign for Children 24-59 months | 11,813 | 13,142 | 111% | 49314 | 78,346 | 159% |
| IFA Supplementation for pregnant and breastfeeding women | 4,071 | 4.586 | 113% | 4057 | 3493 | 86% |

**Table 4: Nutrition Program performance Vs Shepherd standards:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Indicators** | **Camps** | **Host** | **Reference value from the Sphere Standard (8)** |
| Program Coverage for Children | 102% | 96% | Coverage for Camp>95% **(8)**  Host>70% |
| Program Coverage for PBW | 101% | 77% |
| Cured Rate for OTP | 98.3% | Not Applicable | Cured rate>75% **(9)** |
| Cured Rate for TSFP | 98.0% | 99.3% |
| Defaulter Rate | 0.0% | 0.0% | Defaulter rate<15% |
| Death Rate | 0.1% | 0.1% | Death Rate<5% |

* 1. **Quantitative Survey Results & Discussion**

**Table 5: Results from the quantitative assessment by household survey**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Indicators** | **Response Category** | **Camp** | | | **Host** | | |
| **N** | **Response** | **%** | **N** | **Response** | **%** |
| Does CNV measure your child and PBW at the HH level | Yes | 443 | 441 | 99.5% | 451 | 416 | 92.2% |
| How many times did CNV visit HH for screening in the last quarter? | 1 time | 441 | 26 | 5.9% | 416 | 13 | 3.1% |
| 2 time | 30 | 6.8% | 17 | 4.1% |
| 3 time | 385 | 87.3% | 386 | 92.8% |
| Measured for GMP & Provide Counselling | Yes | 251 | 219 | 87.3% | 276 | 265 | 96.0% |
| Do you receive GMP key messages? | Yes | 251 | 210 | 83.7% | 276 | 261 | 94.6% |
| Did you receive the IYCF key message through MtMSG? | Yes | 301 | 283 | 94.0% | 289 | 262 | 90.7% |
| How many IYCF key messages are there? | 1-Message | 283 | 6 | 2.1% | 262 | 4 | 1.5% |
| 2- Messages | 29 | 10.2% | 11 | 4.2% |
| 3-Messages | 80 | 28.3% | 68 | 26.0% |
| 4-Messages | 168 | 59.4% | 179 | 68.3% |
| Did you receive one-to-one counseling? | Yes | 301 | 237 | 78.7% | 289 | 182 | 63.0% |
| IFA Supplementation for PBW | Yes | 156 | 154 | 98.7% | 141 | 134 | 95.0% |
| Vitamin-A supplementation for children 6-59 months |  | 251 | 231 | 92.0% | 276 | 238 | 86.2% |
| Deworming for the children 24-59 months |  | 142 | 100 | 70.4% | 162 | 101 | 62.3% |
| Have you changed any of your nutritional habits in a positive direction? | Yes | 443 | 289 | 65.2% | 451 | 276 | 61.2% |

* 1. **Nutritional status of the children from the Survey**

**Table 6: Impact of nutrition treatment and prevention activities on the children's nutritional status**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Indicators** | **Camp (N=251)** | | **Host (N=276)** | |
| **Impact assessment (3)** | **SENS Survey 2023** | **Impact assessment** | **SMART Survey 2021\* (10, 11)** |
| Global Acute Malnutrition (GAM) | 11.2% (28) | 15.1% | 10.9% (30) | 13.1% |
| Severe Acute Malnutrition (SAM) | 0.8% (2) | 2.0% | 0.7% (2) | 0.8% |
| Moderate Acute Malnutrition (MAM) | 10.4% (26) | 13.1% | 10.1% (28) | 12.3% |

**\*Weighted estimated rate of Pekua and Moheshkhali**

**Table 7: Infants and Young Child Feeding Practices among the survey caregivers for the children 0-23 months**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Indicators** | **Camp** | | | **Host** | | |
| **N** | **Response** | **%** | **N** | **Response** | **%** |
| Early Initiation of breastfeeding within 1 hour after delivery (aged 0-23 months) | 181 | 176 | 97.2% | 308 | 301 | 97.7% |
| Exclusively breastfeeding (EBF) among children 0-5 months of age | 72 | 52 | 72.2% | 115 | 84 | 73.0% |
| Children (aged 6–23 months) have Minimum Dietary Diversity (MDD) (at least 4 food groups) | 109 | 50 | 45.9% | 193 | 102 | 52.8% |
| Minimum Acceptable Diet for children 6-23 months | 109 | 36 | 33.0% | 193 | 69 | 35.8% |

**Table 8: Impact of Social Behavioral Change (SBC) on the Infants and Young Child Feeding (IYCF) practices**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Indicators** | **Camp** | | **Host** | |
| **Impact assessment** | **IYCF Survey 2022 (12)** | **Impact assessment** | **IYCF Survey 2022 (13)** |
| Early Initiation of breastfeeding within 1 hour after delivery (aged 0-23 months) | 97.2% | 84.9% | 97.7% | 74.2% |
| Exclusively breastfeeding (EBF) among children 0-5 months of age | 72.2% | 62.3% | 73.0% | 62.1% |
| Children (aged 6–23 months) have Minimum Dietary Diversity (MDD) (at least 4 food groups) | 45.9% | 28.2% | 52.8% | 31.3% |
| Minimum Acceptable Diet for children 6-23 months | 33.0% | 22.7% | 35.8% | 26.0% |

* 1. **The result from the qualitative assessment**
     1. **Insights of KII (health and nutrition Staff)**
* Areas with high malnutrition and vulnerability were chosen to help those who need it most by regular analysis of program data, program coverage & performance.
* Field visits and reports were used to check the work and ensure it was done well.
* Challenges like hard-to-reach areas and limited access for marginalized groups make it harder to continue the work long-term.
* Children under 2 years and pregnant or breastfeeding women were prioritized to get help first and ensure their visit to the IYCF corner for initial assessment of breastfeeding problems and provide services according to the assessment findings.
* Communities were involved through activities like workshops and sensitization meetings to make them feel part of the project.
* Pregnant and lactating women are trained on IYCF, childcare, and feeding for the sustainability of the program activities through group messaging, counseling, and Mother-to-Mother support group activities.
  + 1. **Insights of KII and FGD**
* Model mothers share key messages on breastfeeding, nutrition, and hygiene, improving child health, and empowering mothers in the community.
* A supplementary cooking session on complementary feeding (CF) with six female participants (one caregiver and five other women) improved understanding of breastfeeding, complementary foods, and hygiene practices, promoting better family health.
* A complementary cooking session with ten female participants (one PBW, nine caregivers) emphasized nutrient-rich feeding alongside breastfeeding, enhancing child nutrition and hygiene.
* A courtyard session with 14 participants (one male, 13 females: one PBW, five caregivers, eight other women) improved knowledge of child nutrition and hygiene, fostering healthier practices and active community sharing.
* 100% of lead mothers understand that the mother aims to enhance physical & mental health and well-being, and they also emphasize breastfeeding.
* 100% of participants from MtMSG mothers (Out of 11) knew that only the first breast milk for the first 6 months of the child.
* 100% of mothers' positive response after 6 months of starting to feed complementary food.

1. **DISCUSSION AND CONCLUSION**

This comprehensive study of secondary data review and qualitative findings, with validation through the quantitative survey, finds that a comprehensive nutrition activity and engaging the target population in nutrition program activities change the social stigma and barriers & improve the nutritional status of the children and Pregnant and Breastfeeding women. A complete package of nutrition activities targeting the most vulnerable groups to break the malnutrition life-cycle through different methods; for example, to improve the nutritional status by treatment and prevention of malnutrition through food supplementation, to improve the Infants and Young Child Feeding (IYCF) indicators by providing IYCF messages through health and nutrition education, group messaging at IYCF corner, Community sensitization, meetings and workshops, mother-to-mother support groups, IYCF counseling from IYCF corner at nutrition facilities as well as health facilities, improving immunity through micronutrient (IFA, Vitamin-A and Deworming etc.) supplementation. The quantitative survey showed that nutritional status (wasting) of the children improved from 15.1% **(3)** to 12.1% at Rohingya camps and from 13.1% **(10, 11**) to 10.9% in the host community of Moheshkhali and Pekua.

The IYCF practices are strongly influenced by what people know, think, and believe, and are also affected by social circumstances and economic factors. Effective communication for behavioral change is necessary for ensuring optimal infant and young child feeding. Awareness regarding IYCF practices and their benefits in Maternal and Child Health (MCH). (

All mothers practiced the Infants and Young Child Feeding (IYCF) indicators; the importance of exclusive breastfeeding, and 72.9% of mothers from the Rohingya practiced it properly, which is higher than the current exclusive breastfeeding rate of 62.3% **(12),** 73.1% of the mothers from the host community practices exclusive breastfeeding (62.1% 2022) **(13).** 33.3% of mothers from the camps and 35.8% of mothers from the host community ensured the Minimum Acceptable Diet (MAD) of complementary feeding for children 6-23 months, which came from the complete SBC approach to IYCF practices.

Complementary feeding cooking demonstration for hands-on learning can change the negative behavior of the targeted audience in a positive direction. In this study, we found that 82.7% of mothers from camps and 61.1% of mothers from the host community changed one of the negative behaviors related to IYCF in a positive direction.

The IYCF practices are strongly influenced by what people know, think, and believe, and are also affected by social circumstances and economic factors. Effective communication for behavioral change is necessary for ensuring optimal infant and young child feeding. Awareness regarding IYCF practices and their benefits in Maternal and Child Health (MCH). (**14,15,16, 17,18)**

The program performance indicators also reflected that the nutrition activities implemented in both the camps and the host community met the Sphere Standard **(19)** in terms of coverage for refugee camps setting(>95%) and rural areas (>70%)(102% for children & 101% for PBW in camps and 96% for the children & 77% for the PBW in the host community), Cured rate (>75%)(average 98.2% in camps and 99.3% in the host community) which indicates that acceptance of the program activities by the vulnerable target groups both in the camps and the host community.

* 1. **EVALUATE CORE HUMANITARIAN STANDARD (CHS)**
     1. **Appropriateness**

The project was highly relevant, targeting communities with high rates of malnutrition, and focusing on the most vulnerable groups, such as children under five years of age and pregnant and lactating women. It was done in partnership with trusted local partners who drew on their community access and trust to ensure smooth and quality delivery of the interventions. Further ensured better implementation was smooth communication and mutual agreement among the stakeholders, and strong monitoring mechanisms, including field visits and performance reviews, to maintain the quality and responsiveness of the interventions. Strategies relating to the improvement of infant and young child feeding practices, promoting breastfeeding, and the involvement of local leaders are some of the most rewarding strategies in terms of results.

* + 1. **Effectiveness**

The project was very effective in providing support to ensure that the right resources reach the right beneficiaries at the right time. Nutrition Treatment, supplements, awareness sessions, and emergency interventions altogether covered both the immediate needs and the prevention of any issues. The project follows an integrated mechanism of feedback through periodic evaluations and community consultations to constantly refine its approach and come out of challenges. Adherence to international humanitarian standards ensured equity, sensitivity, and relevance for the culture of the beneficiaries, thus instilling confidence and enhancing their participation. Despite the logistical challenges in some instances, such as delays in supply chains during emergencies, the project ensured high-quality service delivery. Recommendations were made for resource pre-positioning in very vulnerable areas for better future response in natural disasters and political turmoil, sometimes disrupted services, which did not affect overall effectiveness.

* + 1. **Impact**

Inclusive strategies regarding community involvement have therefore made the project very effective. This sense of ownership and shared responsibility ensured interventions that were relevant and would be well-received. Community mobilization, workshops for stakeholders, and the active participation of local leaders in the process narrowed the communication gaps and built trust to empower beneficiaries to participate in decision-making processes. This helped with sustainability through the alignment of interventions with community needs and fostered long-term support. Special attention was also given to the marginal groups: women, children, and persons with disabilities, through specific interventions that guarantee the removal of barriers represented by geographical isolation and limitation of gender. This resulted in increased knowledge on nutrition, improved nutrition behavior, and a healthier lifestyle.

* + 1. **Sustainability**

The project was also quite well underpinned in terms of approach, with community ownership and participation having major emphasis. This was then further enhanced through community mobilization, stakeholder workshops, and the involvement of local leaders, making it more locally driven, hence likely to receive support and see the advancement of its goals beyond its lifetime. Embedding goals within local structures and systems is, therefore, a good start toward long-term impacts. Inclusion was therefore one of the major sustainability strategies that ensured benefits trickled down to the marginalized groups: women, children, and persons with disabilities. Overcoming these barriers through empowerment and thereby enhancing long-term resilience is further ensured. Access remains restricted, however, in some very remote areas, with different kinds of barriers- geographic isolation, gender-related constraints, and specialized support in restricted amounts for pregnant and lactating women. These have pointed out the need for better logistical infrastructure and support that is targeted to increase the reach and ensure its sustainability. In the Rohingya community, the project laid a very strong foundation for continued support through empowering local stakeholders and addressing equity challenges. Going forward, it would be of the essence that the reduction of access barriers and strengthening of the local capacities assure success and sustainability for the project in all communities.

* 1. **LESSONS LEARNED:**
* Stakeholder involvement, including community leaders and local organizations, fosters trust and enhances the acceptance of new practices. Regular sessions addressing community concerns help to build understanding and long-term adoption.
* Empowering model mothers as advocates for IYCF practices creates a sustainable, peer-led approach to improving nutrition and hygiene within communities and creating leadership among the women. Their role strengthens local ownership and drives behavioral change.
* Practical methods such as home visits, demonstrations, and visual aids significantly enhance comprehension and adoption of proper feeding and hygiene practices, especially for less literate groups.
* Nutrition programs, including supplementary feeding and education sessions, have shown measurable improvements in child growth, immunity, and overall health. Visible results motivate continued participation.
* Encouraging mothers of the beneficiaries to receive counseling, which has a great impact on improving children's nutritional status
* Regular tracking of beneficiaries can reduce absenteeism and defaulters
* The distribution plan is effective for minimizing waiting time & crowd of beneficiaries.
  1. **CHALLENGES:**
* Deeply rooted cultural beliefs, such as discarding colostrum or resistance to exclusive breastfeeding, hinder initial acceptance of new practices, requiring persistent community engagement and education.
* Geographical challenges, particularly in remote or hard-to-reach areas like hilly zones or islands, limit equal access to services and require innovative delivery mechanisms.
* Economic constraints prevent many families from affording complementary foods or essential nutritional supplements, impacting the effectiveness of interventions.
* A lack of skilled health workers, regular monitoring tools, and efficient logistical systems occasionally disrupts service delivery and program coverage.
* Marginalized groups, including women from minority communities and households in extreme poverty, face greater barriers to participating in health and nutrition programs.
* A shortage of printing materials can negatively impact beneficiary services.
* Due to the unrest situation of camps, the mothers of the beneficiaries are not always present at the facility, which is affecting the quality of counseling.

1. **CONCLUSION & RECOMMENDATIONS**

Despite these successes, challenges are not at an end: deep-rooted cultural and geographical isolation and economic constraints create unequal access to services. Among the recommendations that have emerged toward improving the impact and sustainability of the projects are approaches for outreach to marginalized or underrepresented groups with effective, culturally sensitive strategies; improved logistical supports to reach remote areas, and promotion of awareness through digital instruments. It is also critically important that male family members and local leaders be involved in community-level nutrition campaigns. Both the Integrated Management & Treatment Program (IMTP) and IMCN (Improving Maternal and Child Nutrition) projects have realized some successes for the most vulnerable populations against malnutrition in Cox's Bazar District. Their focus on community engagement, sustainability, and adherence to humanitarian standards provides them with a very solid platform on which to continue these efforts. These initiatives can further improve the health and well-being of children and PLW both in the camps and host communities by addressing existing barriers and scaling up innovative solutions.

Recommendations came from the impact assessment and program evaluation are:

* Pre-position essential resources such as nutritional supplements, hygiene kits, and printing materials to minimize logistical delays, especially in emergencies.
* Address barriers faced by marginalized groups through targeted outreach, culturally sensitive materials, and ensuring accessible session locations and timings.
* Engage local leaders, model mothers, and community members in planning and implementing programs to foster ownership and trust, ensuring sustained impact.
* Increase the frequency of monitoring visits, conduct regular data analysis, and adapt interventions to align with evolving community needs and feedback.
* Utilize visual aids, hands-on demonstrations, and affordable, locally available food options to address affordability and improve message retention.
* Deploy mobile health units, establish telehealth solutions, or utilize local hubs to provide equitable access to remote or underserved areas.
* Enhance resource allocation to ensure a consistent supply of essential items, avoiding interruptions in program delivery and coverage.
* Conduct regular training sessions for nutrition staff and volunteers, focusing on technical skills and service delivery.
* Scale up awareness campaigns focusing on practical, low-cost IYCF practices, emphasizing exclusive breastfeeding, complementary feeding, and hygiene as critical components of child health.
* Develop culturally appropriate messages to address barriers to breastfeeding and dietary diversity.
* Engage male family members and community influencers to support women's participation in nutrition programs.
* Expand adolescent-friendly nutrition awareness sessions and create more platforms like functional groups or multimedia sessions tailored to adolescents' needs
* Use technology to reach adolescents and other underserved populations effectively.

1. **LIMITATIONS**

During data collection, several environmental and cultural challenges were anticipated and addressed:

**Weather Conditions:** Inclement weather in the rainy season made it difficult to carry out interviews. In this regard, the interviewer had to find some decent and dry places where participants could answer questions conveniently and without interruptions.

**Cultural Sensitivities:** Some women were not willing to share information due to cultural barriers. To counter this, female CNVs or staff were assigned for interviews with women to maintain culturally appropriate communication and sensitivity to participants' comfort.

**Unexpected disruptions:** Political strife, sudden storms, or disruption of the internet sometimes interrupted the collection of data from time to time. Safety was ensured for participants and data collectors by continuously monitoring security updates and changing plans whenever necessary.

1. **ETHICAL APPROVAL**

The approval for the survey was taken from the respective authorities, such as the Refugee Relief Repatriation Commissioner (RRRC), the Camp-in-Charge (CiC) of the respective camps.

To protect the participants, especially children and pregnant or lactating women, the guiding principles for data collection included voluntarism, confidentiality, and anonymity. Participation was strictly voluntary. In the beginning, the purpose of the study was explained, and it was made certain that the information provided would be kept confidential. They were free to withdraw or skip any question without any repercussions.

**Do No Harm:** The questions were constructed to do no harm and cause no discomfort to the respondents. Support was given for sensitive issues, or further resources were provided where appropriate.

**Integrity:** Data reported fully and with accuracy. Full effort was made to double-check information and make sure information was presented correctly in its proper context.

Integrity: Data reported fully and with accuracy. Full effort was made to double-check information and make sure information was presented correctly in its proper context.

**Participant Feedback:** Findings related to key issues were fed back to the community and participants in an attempt to incorporate their views into the final report.

**Child Protection:** In sessions involving children, a responsible adult was also present; children were never asked anything that could make them remember something personal and hurt them. Interviewers followed guidelines for child protection strictly because it is relevant to safety.

1. **INFORMED CONSENT**

Before the start of quantitative and qualitative data collection, the survey team will have a minute or two of introduction and the purpose of the survey, and how long the survey will take for the respondents. The team will also guarantee the respondent or the FGD group the confidentiality and privacy of the information that will be collected during the survey. No personal and family information shall be revealed during reporting, and the rights and privacy of the respondents shall be respected. If she/he wish not to respond to questions or wish to drop the survey, both quantitative and qualitative. Therefore, the survey only proceeds upon getting informed consent from the respondent and or the FGD group participants.

The participants were selected equitably, and their informed consent was sought to ensure that they participated in the study voluntarily.

1. **DISCLAIMER (ARTIFICIAL INTELLIGENCE)**

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

1. **COMPETING INTERESTS DISCLAIMER:**

Authors have declared that they have no known competing financial interests or non-financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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**Annex1:**

**Table 1 Demographic information of the respondents (N=894) for quantitative survey**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Indicators** | **Category** | **Camp (N=443)** | | **Host (N=451)** | |
| **Frequency** | **%** | **Frequency** | **%** |
| Respondent type (N=894) | **Pregnant women (PW)** | 120 | 27.1% | 107 | 23.7% |
| **Breastfeeding women (BW)** | 72 | 16.3% | 68 | 15.1% |
| **Caregivers of children 6-23 months old** | 109 | 24.6% | 113 | 25.1% |
| **Caregivers of children under 2-5 years old** | 142 | 32.1% | 163 | 36.1% |
| Sex respondent | **Male** | 24 | 5.4% | 4 | 0.9% |
| **Female** | 419 | 94.6% | 447 | 99.1% |
| Child Age (N: Camp=323  Camp=344) | **0-5 Months (BW + children)** | 72 | 22.3% | 68 | 19.8% |
| **6-23 Months** | 109 | 33.7% | 114 | 33.1% |
| **24-59 Months** | 142 | 44.0% | 162 | 47.1% |