


Influence of participation in Multi-Sectoral Social Behavioural Interventions on Dietary Diversity for Women and Children: Regression Analysis- India Country Package of Global Programme Food & Nutrition Security

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Securing Nutrition, Enhancing Resilience Project in India

Objective

The nutrition situation of nutritionally insecure people, particularly women of reproductive age and small children, has improved.

Phase 2 (2021-25):
280,000 women & 56,000 young children

Phase 1 (2015-20):
144,000 women & 30,000 young children

Duration: 2015 - 2025



Project Interventions

The major interventions/activities included:

- Capacity strengthening of Anganwadi Workers (frontline health and nutrition extension workers) & mothers on diet diversity, its indicators & food groups.
- Support the implementation of participatory sessions by the Anganwadi Workers to promote optimal infant & young child feeding and caring practices, specifically to increase dietary diversity by using Participatory Learning and Action (PLA) approach.
- Supporting home nutrition garden and pilot of 20 community nutrition gardens through provision of seeds and agricultural training sessions
- Promote optimal hygiene practices



Objective of FUS

India country package focused on the following outcome indicators:

- Dietary diversity of women of reproductive age (15-49 years) in the two target districts of Sheopur and Chhatarpur improved according to the IDDS score from 3.6 at baseline to 4.6 after intervention.
- Share of 30.000 children aged 6-23 months receiving minimum acceptable (MAD) diet improved from 17% to 32%.
- Overall nutrition governance has improved by three critical governance indicators.

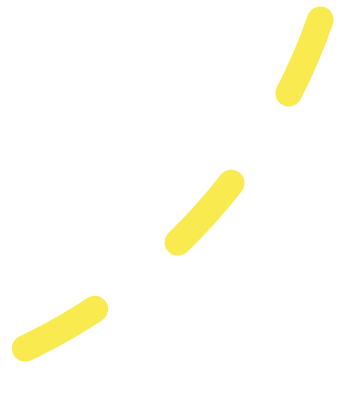


Hypothesis :

- **Global Hypothesis:** Participation in GIZ interventions contributes to better food security and diet diversity
- **Multi-sectoral Hypothesis:** Participation in different GIZ interventions contributes to better food security and diet diversity (IDDS, MDD, MAD, HFIES) compared to participation in only one GIZ intervention type
- **Behavioural change Hypothesis:** Those beneficiaries that participate in activities which directly support behaviour change have a higher likelihood to practice the promoted measures than beneficiaries, who participate in other activities

Methodology

- Quantitative Household survey of women who attended PLA . Intervention area: Sheopur & Chhatarpur: Control area: Panna
- Sampling plan for this survey was a two-stage systematic random sampling proportional to population size selecting units at each stage (villages and households).
- Data collection was conducted through a mix methods approach consisting of the collection of quantitative and qualitative data.
- Quantitative data were collected using a (standardized – country adapted) questionnaire. Qualitative data were collected through Focus Group Discussions (FGDs).
- Multi-variate regression analysis using dependent variables: MAD, IDDS
- In addition, due to the under-coverage resulting from the break in data collection due to the outbreak of COVID-19, aggregation of both districts in a single “beneficiary” group The accuracy of the estimators is assumed to be around 85 % using the Gpower.





Findings on outcomes

Findings: Socio Demographic data

	2016 baseline total (n=803)	Intervention (n=242)	Control (n=320)
Mother age in years (mean ± SD)	25.3 ± 4.2	25.5 ± 3.6	25 ± 3.2
Child age in months (mean ± SD)	13.7 ± 4.9	14.1 ± 5	14.5 ± 5.2
Caste			
Other backward classes	52.6	43.0	42.5
Scheduled tribe	22.0	19.4	29.7
Scheduled caste	15.4	27.4	26.3
General	9.7	10.1	1.6
Other / do not know	0.2		
No schooling	48.8	14.2	16.6
# of HH members (mean ± SD)	7 ± 3.3	6.11 ± 2.56	5.51 ± 1.96



Women Dietary Diversity surpassed target value of 4.6 and reached more than 5 food groups

	NBS (n=803)	Intervention (n=242)	Control (n=320)
Minimum Dietary Diversity-W (%)	19.9	60.2	38.4
Individual Dietary Diversity Score-W (mean ± SD)	3.6 ± 1.2	5.3 ± 1.7	4.6 ± 1.2

p <0.01- Baseline to FUS Intervention; FUS Intervention Vs Control

“We grow our own vegetables at home...We pluck the vegetables fresh and cook them.....” - Mother, Tapran village, Chhatarpur district, FGD

Children Nutrition improved but not reached the target value of 32%

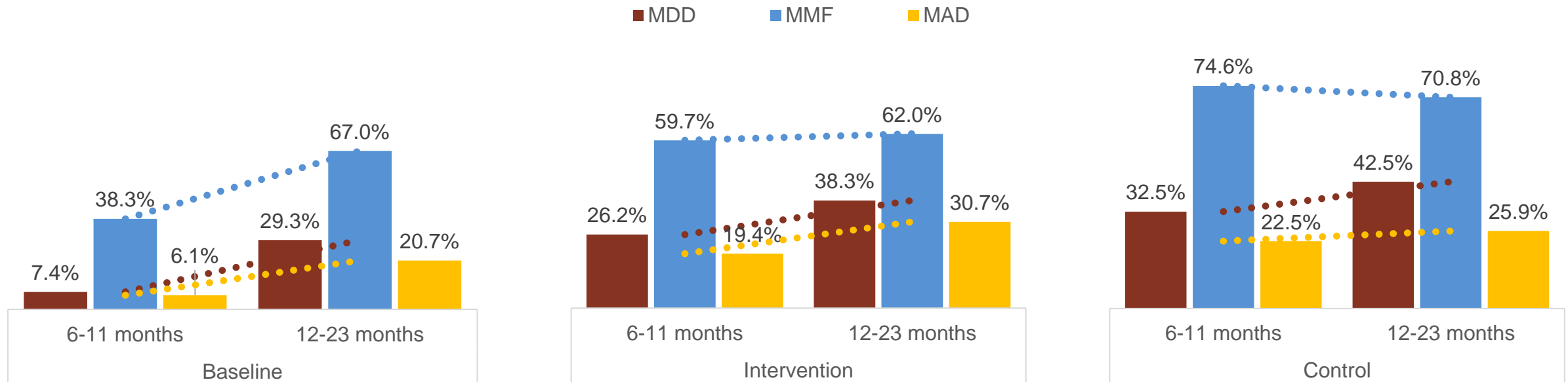
	Baseline (n=787)	Intervention (n=239)	Control (n=320)
IDDS-C (mean ± SD)	2.3 ± 1.4	3.2 ± 1.2	3.3 ± 1.0
MDD (%)	22.6	34.7	41.6
MMF (%)	58.9	61.1	72.5
MAD (%)	17	27.6	25.4

IDDS: Baseline to FUS (with $p=0.31$).

MDD: Baseline to FUS (with $X^2 = 26.43, p<0.01$)

MAD significantly improved in the intervention group, from 11.6% to 27.6% (with $X^2 = 26.7, p<0.01$).

Children nutrition improves with age. Many children (6-11 months) did not start complementary feeding in time and had less diverse food.



- MMF did not significantly improve with age (compared to control), probably because of the role of breastfeeding

Household Food Insecurity Experience Scale: *Perceived food security indicates a polarizing trend with both the share of food secure and food insecure respondents increasing*

	Baseline (n=788)	Intervention (n=241)	Control (n=320)
Food secure	50.1	56.4	10.0
Mildly food insecure	34.3	16.2	27.2
Moderately food insecure	11.7	18.7	38.1
Severely food insecure	3.9	8.7	24.7

- Project may have contributed to mitigate a crisis that affected both intervention and control households.





Findings on hypotheses

Participation by Intervention Clusters

	Participation	Frequent Participation
Women participating to hygiene related interventions	78.8	42.7
Women participating to agriculture production related interventions	72.2	47.3
Women participating to social-behaviour oriented nutrition related interventions	68.9	49.8
Women participating to social behaviour-oriented hygiene related interventions	78.8	75.5
Women participating to nutrition related interventions	75.9	53.9

Global Hypothesis is fulfilled: Participation in GIZ interventions contributed to better food security and diet diversity (IDDS, MDD, MAD, HFIES) compared overtime and to a control group

	Intervention ↔ Control	Baseline → Intervention
IDDS-W (mean ± SD)	5.3 ± 1.7 ↔ 4.6 ± 1.2 p < 0.01	3.6 ± 1.2 → 5.3 ± 1.7 p < 0.01
MDD-W (%)	60.2 ↔ 38.4 X ² = 48.1 p < 0.01	40.0 → 60.2 X ² = 244.6 p < 0.01
IDDS-C (mean ± SD)	3.2 ± 1.2 ↔ 3.3 ± 1.0 p = 0.31	2.3 ± 1.4 → 3.2 ± 1.2 p < 0.01
MDD-C (%)	26.5 ↔ 41.6 X ² = 4.5 p < 0.05	16.8 → 26.5 X ² = 26.4 p < 0.01
MAD (%)	27.6 ↔ 25.4 X ² = 0.8 p = 0.37	16.2 → 27.6 X ² = 26.7 p < 0.01
Hygiene indicator (%)	5.4 ↔ 1.6 X ² = 22.8 p < 0.01	Baseline not available

Behavioural change Hypothesis: The likelihood to achieve MAD is 3.7 times higher if the mother observes 70% of hygiene practices and 12 times higher if she participates to hygiene related social behavioural change activities.

Variable	Coefficients (Effect strength)	Sign	Odds Ratio	P Value
Women practicing 70% of hygiene practices	1.3.14	+	3.720	0.026
Market Orientation	-2.403	-	0.090	0.000
Women participating to social behavior-oriented hygiene related interventions	2.485	+	12.002	0.001
Women participating to agriculture production related interventions	-1.607	-	0.200	0.052
HFIES (Moderately food insecure)	-2.172	-	0.114	0.007

Non-significant variables: Age of the child, number of household members, education level of mother, Intensity of participation to social-behavior change interventions, production diversity for crops, fruits, vegetables and animals, animal orientation, Women participating to social behavior oriented nutrition related interventions, women participating to food ration related interventions, participation to multisector interventions

Behavioural change Hypothesis: Considering only food secure and mildly food insecure household, the likelihood to achieve MAD is 6 times higher if mother observes hygiene practices and 42 times higher if mother participates in hygiene related SBC interventions.

Variable	Coefficients (Effect strength)	Sign	Odds Ratio	P Value
Age of Child	0.130	+	1.139	0.015
Number of years of schooling completed by the mother	0.213	+	0.010	1.238
Women practicing 70% of hygiene practices	1.787	+	5.969	0.008
Market Orientation	-3.123	-	0.043	0.049
Women participating to social behavior-oriented hygiene related interventions	3.739	+	42.069	0.001
Women participating to agriculture production related interventions	-2.827	-	0.059	0.024
Women participating to food ration related interventions	-1.393	-	0.248	0.030

Non-significant variables: Number of household members, Intensity of participation to social-behavior change interventions, production diversity for crops, fruits, vegetables and animals, animal orientation, Women participating to social behavior oriented nutrition related interventions, participation to multisector interventions

Multisectoral Hypothesis: The impact of multi-sectoral participation is somewhat puzzling as regressions show that it has a positive relation to women nutrition but a negative or insignificant relation to children nutrition.

- Intervention in the agriculture production sector shows a **positive impact** for **women nutrition** in conjunction with hygiene and nutrition related interventions
- By contrast, we can also observe that **children** are **5 times less likely to achieve MAD** when their **mother participate to agriculture production activities**.
- This is further supported by the impact of market orientation as **market orientation has a severely negative effect on the likelihood to achieve MAD for children** while it has a **positive impact on the likelihood to achieve MDD for women**.
- It appears that while mothers try to generate income for the household through agriculture production, children are fed less diversely and less frequently.

Conclusion

- **Overall nutrition situation improved significantly both for women and children as compared to baseline.** However, as compared to control, children's MAD and MDD-C not better.
- Disaggregation between child nutrition indicators show improvement with age, **Again indicates 6-11 months remain the vulnerable period with inadequate complementary feeding.**
- Regarding women nutrition, the increase in diet diversity for women (MDD-W) can mostly be **attributed to the increase in consumption of vitamin A-rich fruit and vegetables and dark green leafy vegetables.**
- The number of beneficiary households with access to a home garden increased to 30.5%. **The intervention actually promoted access to vegetable garden, but usage is still sporadic.**
- Regarding participation pattern to project interventions, for any intervention surveyed, **there was never more than two third of the beneficiaries that have participated.**
- The main vector to receiving counsel is through the **AWW meeting under PLA which was mentioned by 88 percent** of beneficiaries that received counselling. The second most common way to receive hygiene counselling is through Angawadi workers, with about 60 percent of beneficiaries mentioning this.

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