



ICDS Centre in Rajasthan. Photo courtesy of Bobbi Gray, Grameen Foundation

## Factors Associated with Accessing Integrated Child Development Services (ICDS) Scheme Among Women in Rural Rajasthan, India

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## **PROFESSIONAL ASSISTANCE FOR DEVELOPMENT ACTION (PRADAN)**

PRADAN was established in 1983 and is a widely-recognized national-level organization that specializes in promoting livelihood opportunities among SHGs of women. PRADAN follows a four-pronged approach to achieve its goals: 1) Promoting and nurturing SHGs of poor women and strengthening them as organizations to leverage institutional finances for members' livelihoods; 2) Developing and introducing locally suitable economic activities to increase productivity and income among SHG members and building synergic collaboration with a wide variety of stakeholders; 3) Mobilizing finances for livelihood assets and infrastructure from government bodies, donors, banks and other financial institutions; and 4) Setting up mechanisms to sustain the livelihood gains made by the poor communities. In Sirohi, Rajasthan, PRADAN currently is reaching over 450 women's SHGs and implementing a variety of agriculture, livestock improvement, and nutrition and health projects.

## **VOLUNTARY ASSOCIATION OF AGRICULTURAL GENERAL DEVELOPMENT HEALTH (VAAGDHARA)**

VAAGDHARA was formed in the 1980s to augment livelihood sources and options through improving traditional agricultural practices among the tribal population and other marginalized groups in Rajasthan. VAAGDHARA has broad expertise in developing and implementing programs that link interventions across multiple sectors to address poverty, women's empowerment, child protection, agricultural development and livelihood development and poverty alleviation. VAAGDHARA is currently reaching thousands of families in Banswara with livelihood, agriculture and food security initiatives and will use this as the foundation for increased focus on health, nutrition and gender.

## **GRAMEEN FOUNDATION**

Grameen Foundation is a global nonprofit organization that helps the world's poorest people achieve their full potential by providing access to essential financial services and information on health and agriculture that can transform their lives. In 2016, Grameen Foundation and the global nonprofit Freedom from Hunger decided to join forces under the banner of Grameen Foundation. The integration of the two organizations brings together Grameen Foundation's expertise in digital innovation to end poverty and Freedom from Hunger's focus on providing the world's poorest women with self-help tools to reduce hunger and poverty. Grameen Foundation is headquartered in Washington, D.C., with offices in the U.S., Asia, Africa, and Latin America. For more information, please visit [www.grameenfoundation.org](http://www.grameenfoundation.org) or follow us on Twitter: @GrameenFdn.

## **FREEDOM FROM HUNGER INDIA TRUST**

Established in 2012, Freedom from Hunger India Trust (FFHIT) is an independent Indian non-profit organization based in New Delhi with offices in West Bengal and Madhya Pradesh. The technical staff of FFHIT oversee health, nutrition, financial inclusion, vulnerable youth and savings group methodologies, and provide expert advice on learner-centered curriculum design. FFHIT's goal is to achieve nutrition and food security, reduce poverty and improve economic and social status of poor and marginalized women and their families through increased integration of financial services with other essential services such as health, nutrition and livelihood opportunities. FFHIT is also an active member of National Coalition of Food and Nutrition Security.

# Abstract

The purpose of this study was to assess the Integrated Child Development Services (ICDS) Scheme centre usage among women in rural Rajasthan and characteristics of households accessing these centres. The findings suggest that in rural Rajasthan, the majority of individuals access ICDS centres, especially supplementary food services. While supplementary food services can be effective in reducing childhood undernutrition, ICDS services in this region may consider increasing focus on other cost-effective and underutilized services, including breastfeeding education. Many hypothesized determinants of ICDS centre use in this study proved insignificant, such as poverty and several household decision-making variables. Some decision-making variables were, however, associated along with reported use of oral rehydration solutions for treating diarrhea. Interventions aiming to increase utilization of ICDS centres in this region may find it beneficial to increase female participation in health care decisions, likely through improved spousal communication and gender relations, as well as increasing use of services such as breastfeeding support.



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# Introduction

Although India has experienced an increase in food grains accompanied by economic growth, child malnutrition continues to remain higher than in many African countries (1, 2). This paradox has become known as the “India enigma” (2). According to latest survey conducted by the Ministry of Women and Child Development, 38.7% of children in India were stunted, 29.4% were underweight, and 15.1% were wasted in 2013-2014 (3). While the causes of malnutrition in India are complex and interconnected, they include food insecurity, gender inequality, early marriages, teen pregnancies, poor fetal nutrition, female illiteracy, poor breastfeeding practices, frequent infections, and inadequate health care (4).

In an effort to decrease rates of malnutrition, the government of India implemented three primary approaches aimed at increasing food access. These approaches include: (1) providing price controls on staple foods, (2) providing income support through food-for-work opportunities, and (3) providing nutrition supplementation for children. The Integrated Child Development Services (ICDS) Scheme, which was launched in 1975 by the government of India, is the largest of India’s nutrition supplementation programs (1). The ICDS Scheme provides the following services: supplementary nutrition, pre-school non-formal education, nutrition and health education, immunization, health check-up, and referral services. These services are provided at ICDS centres, which are locally known as Anganwadi centres (5).

Recent research has evaluated ICDS centres by their facilities, the knowledge possessed by their workers, or the effectiveness of specific services (1, 6, 7). However, few studies have assessed the extent to which ICDS centre services are being utilized (8, 9). Rao found that pregnant women living in ICDS areas were more likely to seek ante-natal care (50.2 percent) and immunizations (46.2 percent) compared to pregnant women who were not living in ICDS areas (8). Chudasama et al. found that among participating ICDS centres, 61.7 percent had reported an interruption in the supply of nutrition supplements (in the last six months), 20 percent reported complete preschool education coverage, 10 percent had record of immunizing all children, 18.3 percent provided referral slips, and 8.3 percent actually referred sick children (9). The purpose of this study is to understand (1) the extent to which women living in Rajasthan, India utilize services provided by ICDS centres and (2) the factors that are associated with utilizing these services.

# Methods

## *Study Setting*

Freedom from Hunger (FFH)<sup>3</sup> and Freedom from Hunger India Trust, in collaboration with two local implementing partners in Rajasthan, India, Professional Assistance for Development Action (PRADAN) and Voluntary Association of Agricultural General Development Health and Reconstruction Alliance (VAAGDHARA) are working to improve household nutrition in the Rajasthan districts of Banswara and Sirohi. The Rajasthan Nutrition Project is a cross-sectoral project designed to build on the existing women's self-help group (SHG) movement to supplement standard savings and agricultural livelihood activities with key nutrition-related interventions to reach at least 8,000 SHG members and their households (an additional 28,000 family members) in Banswara and Sirohi.

## *Participant Selection*

In May 2015, a sample of women were selected to participate in the 400 interviews planned for the baseline study. To be selected for participation, women had to meet the following criteria: (1) be SHG members from PRADAN or VAAGHDARA, (2) be in their second or third trimester of pregnancy, or be mothers of children less than two years of age, and (3) live in Banswara or Sirohi district. The results of a census of all SHG members who fit the criteria revealed that 1394 women had children between 0-2 years of age and 250 women were pregnant.

These numbers were used to determine the final distribution of interviews. Specifically, it was decided that 85 percent of the respondents would be mothers with children between 0-2 years of age and 15 percent would be women who were currently pregnant. Consequently, 249 mothers and 48 pregnant women from Sirohi and 91 mothers and 12 pregnant women from Banswara were interviewed for the baseline study.

## *Survey and Data Collection*

The survey instrument was administered to 403 women, due to slight oversampling. The survey comprised questions covering several topics such as poverty, food security and nutrition, curative care related to diarrhea, coping strategies, and household decision-making. Poverty was measured using the *India Progress out of Poverty Index® (PPI) Scorecard* (10). Coping strategies were measured using the Coping Strategies Index (CSI; 11), which uses 13 variables to assess respondent's coping behaviors during a food shortage. Additional health questions were taken from the FFH Health Outcomes Performance Indicators project (12) and India's Demographic and Health Survey (13).

## *Statistical Procedures*

The International Poverty Line (IPL) \$1.25/day, IPL \$2.50/day, and National Tendulkar indices were each constructed using values from the *PPI Scorecard*. Raw values were generated based on question responses, summed, and were then matched with probability ranges using PPI documentation (10). While the IPL \$1.25/day and \$2.50/day represent households living under *international* poverty lines of

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<sup>3</sup> Freedom from Hunger is now a supporting organization of Grameen Foundation.

\$1.25/day and \$2.50/day, the National Tendulkar represents households living under India's *national* poverty line.

Coping scores were computed using guidelines provided in the CSI (11). Examples of coping behaviors assessed included relying on less preferred or expensive foods, borrowing food or relying on help from relatives, sending household members to beg, and limiting portion size at mealtimes. Participants were assigned a value of 1 if they indicated they had participated in the coping behavior and a value of 0 if they indicated they had not participated in the coping behavior. Scores were summed to generate an overall index score for coping strategies (0=least number of coping behaviors used, 13=most number of coping behaviors used).

SAS (version 9.4) was used to conduct all statistical analyses. Descriptive statistics were computed to describe the study sample. Unadjusted and adjusted logistic regressions were run to describe potential factors associated with accessing ICDS services.



# Results

Table 1 displays the frequencies, percentages, and means for demographic variables. The majority of participants indicated that they were Hindu (99.75 percent), part of a tribe (90.82 percent), married (96.53 percent), and had children under the age of two (94.43 percent). A total of 21.09 percent of participants were currently pregnant, which was intentional due to sampling procedures. Among participants, there was an average of 3.21 children (1.72 girls and 1.55 boys). The average age of the participants' youngest child was 1.09 years of age.

**Table 1. Frequencies, Percentages, and Means of Demographic Questions**

| Variable              | Frequency | Percent | Mean |
|-----------------------|-----------|---------|------|
| Religion              |           |         |      |
| Hindu                 | 402       | 99.75   | -    |
| Muslim                | 1         | 0.25    | -    |
| Caste or tribe        |           |         |      |
| Caste                 | 37        | 9.18    | -    |
| Tribe                 | 366       | 90.82   | -    |
| Marital status        |           |         |      |
| Single                | 6         | 1.49    | -    |
| Married               | 389       | 96.53   | -    |
| Separated/Divorced    | 1         | 0.25    | -    |
| Remarried             | 7         | 1.74    | -    |
| Children <2 years old |           |         |      |
| Yes                   | 373       | 94.43   | -    |
| No                    | 22        | 5.57    | -    |
| Number of children    | -         | -       | 3.21 |
| Number of girls       | -         | -       | 1.72 |
| Number of boys        | -         | -       | 1.55 |
| Age of youngest child | -         | -       | 1.09 |
| Pregnancy status      |           |         |      |
| Yes                   | 85        | 21.09   | -    |
| No                    | 318       | 78.91   | -    |

Table 2 displays the frequencies and percentages for ICDS centre variables. The majority of participants (60.55 percent) indicated that they themselves, or someone in their family, had received benefits from the ICDS centre in the last 12 months. Among participants who had received benefits, the most commonly received services were immunizations (89.34 percent) and supplementary food (84.43 percent). The least commonly received services were breastfeeding support (10.66 percent) and education (15.98 percent).

**Table 2. Frequencies and Percentages for ICDS Centre Questions**

| Variable   | Frequency | Percent |
|--|-----------|---------|
| Respondent or family member received benefits from the ICDS centre in the last 12 months |           |         |
| Yes  | 244       | 60.55   |
| No   | 159       | 39.45   |
| Benefits received from ICDS centre   |           |         |
| Supplementary food   |           |         |
| Yes  | 206       | 84.43   |
| No   | 38        | 15.57   |
| Growth monitoring  |           |         |
| Yes  | 85        | 34.84   |
| No   | 159       | 65.16   |
| Immunizations  |           |         |
| Yes  | 218       | 89.34   |
| No   | 26        | 10.66   |
| Health check-up  |           |         |
| Yes  | 82        | 33.61   |
| No   | 162       | 66.39   |
| Education  |           |         |
| Yes  | 39        | 15.98   |
| No   | 205       | 84.02   |
| Breastfeeding support  |           |         |
| Yes  | 26        | 10.66   |
| No   | 218       | 89.34   |
| Other  |           |         |
| No   | 244       | 100     |

Table 3 displays the logistic regression comparing use of ICDS services with household decision-making variables. Most household decision-making variables were not significantly associated with accessing ICDS centre services. The only significant associations were with the variable “spoken with spouse about household food and nutrition needs in the last 6 months” (Unadjusted OR=0.57; CI=0.36 – 0.90). An unadjusted odds ratio provides a model for a single exposure variable and outcome variable. In an unadjusted model, respondents who had spoken with their spouse about household food and nutrition needs (exposure variable) were less likely to use ICDS centres (outcome variable) compared to those who had not spoken with their spouse about household food and nutrition needs.

**Table 3. Logistic Regression for Household Decision-making Variables**

| Variable  | Unadjusted OR (95% CI) | P-value |
|---|------------------------|---------|
| Mother involved in decisions about food purchases   | 1.04 (0.70 – 1.56)     | 0.8349  |
| Mother involved in decisions about the amount of food to serve each family member           | 0.99 (0.67 – 1.48)     | 0.9762  |
| Mother involved in decisions about finances   | 0.15 (0.74 – 1.80)     | 0.5335  |
| Mother involved in decision about health care   | 1.38 (0.89 – 2.15)     | 0.1492  |
| Mother involved in decisions about visits to family   | 1.29 (0.85 – 1.96)     | 0.2352  |
| Mother had spoken with spouse about household food and nutrition needs in the last 6 months | 0.57 (0.36 – 0.90)*    | 0.0160* |
| Mother had unrestricted access to any income  | 0.72 (0.46 – 1.12)     | 0.1492  |
| Mother spends money without first discussing it with someone else, such as husband          | 1.47 (0.69 – 3.14)     | 0.3154  |

\*significant p-value

Table 4 displays the unadjusted and adjusted odds ratios for variables included in the logistic regression model. An adjusted odds ratio provides a model that adjusts for the confounding of other exposure variables included in the model. In an adjusted model, the variables that were significantly associated with accessing ICDS centre services included purchasing ORS for child's diarrhea (adjusted OR=2.78; CI=1.53 – 5.05), mother involved in decisions about health care (adjusted OR=1.72; CI=1.04 – 2.84), and having spoken with spouse about household food and nutrition needs (adjusted OR=0.50; CI=0.31 – 0.83). Respondents who had purchased ORS for child's diarrhea or were involved in decisions about health care were both significantly more likely to access ICDS centre services compared to their counterparts. Respondents who had spoken with their spouse about household food and nutrition needs were significantly less likely to access ICDS centre services compared to those who had not spoken with their spouses about household food and nutrition needs.

**Table 4. Logistic Regression Model**

| Quantitative Variable   | Unadjusted OR<br>(95% CI) | P-value | Adjusted OR<br>(95% CI) | P-value |
|---|---------------------------|---------|-------------------------|---------|
| PPI NPL   | 1.00<br>(0.99 – 1.01)     | 0.6689  | 1.01<br>(1.00 – 1.02)   | 0.2450  |
| CSI   | 0.93<br>(0.84 – 1.04)     | 0.1906  | 0.91<br>(0.80 – 1.03)   | 0.1229  |
| Mother's food security  | 1.17<br>(0.72 – 1.93)     | 0.5266  | 1.24<br>(0.69 – 2.25)   | 0.4732  |
| Mother purchased ORS for child's diarrhea in the past 12 months                             | 2.61<br>(1.45 – 4.67)     | 0.0013* | 2.78<br>(1.53 – 5.05)   | 0.0008* |
| Mother involved in decisions about health care  | 1.38<br>(0.89 – 2.15)     | 0.1492  | 1.72<br>(1.04 – 2.84)   | 0.0345* |
| Mother had spoken with spouse about household food and nutrition needs in the last 6 months | 0.57<br>(0.36 – 0.90)     | 0.0160* | 0.50<br>(0.31 – 0.83)   | 0.0064* |
| Mother believes a child should be exclusively breastfed for 6 months                        | 1.19<br>(0.78 – 1.80)     | 0.4242  | 1.28<br>(0.82 – 2.00)   | 0.2843  |

\*significant p-value

## Discussion and Conclusion

The purpose of this study was to assess ICDS centre usage among women in rural Rajasthan and characteristics of households accessing these centres. The findings of the current study indicate that the majority of households in this region utilized services from ICDS centres, the most prominent of which were immunization and supplementary food services. Other research suggests that supplementary food services have become the primary focus of many ICDS centres (14). While such services can improve childhood health outcomes, a focus on food supplementation exclusively comes at the expense of other program components (14) that may be more cost-effective at improving childhood health, such as breastfeeding promotion (15). Interestingly, this study found that breastfeeding is among the least utilized ICDS services, despite low breastfeeding prevalence in this region. The Indian government reported in a 2015-2016 health survey that only 28.4 percent of children under 3 years were breastfed within one hour of birth and only 58.2 percent of children under 6 months were breastfed exclusively in Rajasthan (16). While supplementary food services are important, ICDS centre administrators may consider shifting administrative and financial resources to promoting breastfeeding and other services.

Most of the decision-making variables assessed in this study were not significantly associated with ICDS service use. One exception was female involvement in health care decisions, which was positively associated with ICDS use. Predictors of female participation in household health care decisions include increased number of children, education, and age (17). Increasing female participation in household health care decisions may be an efficient tactic to increase not only ICDS service use, but use of other health services. Research indicates that female participation in health care decisions influences participation in important health care services, including reproductive and prenatal care (18). Addressing household decision-making patterns usually involves addressing gender norms (19). While increasing numbers of interventions targeting harmful gender norms strive to involve men, research suggests that the most successful interventions to improve gender relations and decision-making norms still revolve around empowerment, including increasing access to educational and economic resources and reducing child marriage (19).

Another decision-making variable that was significantly associated with accessing ICDS services was speaking with spouse about household nutrition needs. Those who spoke with their spouse about these needs were less likely to report accessing ICDS services. One possible explanation for this finding is that women who discuss household nutrition needs are at a financial advantage which precludes them from needing to use ICDS services. Although prior research suggests that there is a relationship between poverty status and use of ICDS centres (20), the PPI was not associated with accessing ICDS centres in our study. One reason why we did not see an association between these variables is that women in the SHG may be relatively homogenous in poverty status. As PPI is not associated with accessing ICDS centers, it is unlikely that being at a financial advantage explains why those who speak to their husbands about household nutrition do not use ICDS centres.

There are several more likely explanations for the relationship between speaking with spouse about household nutrition needs and accessing ICDS services. First, because ICDS services specifically target women, they do not feel the need to speak with their husbands about their household nutrition needs. Instead, these women utilize ICDS services to address their household nutrition needs. Second, women who speak with their husbands about nutrition may be more likely to discuss the use of other available health services, such as private health services, with their husbands. As a result, they may choose to use private health services more often, and ultimately decrease or discontinue their use of ICDS centres.

Third, women who have to talk with their husbands about food needs may feel less empowered to use ICDS services.

Another significant determinant of ICDS centre use was having purchased ORS to treat a child with diarrhea. It is uncertain whether the use of ORS is a result of ICDS centre use (i.e., women use ORS after learning about them at ICDS centres) or a predictor (i.e., women who use ORS are usually more educated about other health care resources). In 2014, ICDS and health departments in India embarked on a joint campaign to increase ORS knowledge and use, which could provide early evidence for the former. The campaign entailed door-to-door distribution of ORS, demonstrations of how to use ORS at hospitals and primary health centres, and promotion of other preventive behaviors, including breastfeeding (21). While the impact of the campaign thus far is uncertain, ORS plays a key role in preventing diarrheal disease and maternal education of ORS has been shown to increase ORS usage (22).

Results from this study indicate that few expected factors, including income and many decision-making variables, were associated with ICDS centre use. It appears from other research of household income and ICDS centres usage that the relationship varies by region (7, 14, 23). While ICDS goals do not explicitly mention reaching high-need, low-income populations, it would be hoped that research would indicate a disproportionate usage of ICDS services by these populations. While research of household access to ICDS services is important, such efforts usually rest on the assumption that such services are effective at improving childhood health outcomes to begin with. Studies of ICDS centre effectiveness are conflicting, with some studies reporting success (7) and others reporting low effectiveness at reducing childhood malnutrition in the long-term due to operational challenges and disparities in access (1, 14). Perhaps due to conflicting research, ICDS centres have faced major budget cuts, including a 7 percent reduction in 2016 (24). As ICDS centres are one of the most prominent programs for improving childhood health in India (6), future studies of both access to and effectiveness of ICDS programs, especially in the face of major resource shortages, are important.

### *Limitations*

This study should be interpreted within the context of a few limitations. First, the survey question measuring ICDS centre access asked participants whether they had accessed services over the past 12 months. This timeframe may overestimate or mischaracterize true use of ICDS centres. Further studies measuring ICDS use over time may be beneficial in order to accurately reflect use. Second, many decision-making questions, including inter-gender communication, were included in this study. The survey neglected to measure the role of other gatekeepers involved in decision-making, especially mothers-in-law, who are often involved in important household decisions. The results of this study may inaccurately reflect decision-making patterns among households in this region. Further study of third-party influences on decision-making may be of importance.

### *Conclusion*

Our findings suggest that in rural Rajasthan, the majority of individuals access ICDS centres, especially supplementary food services. While supplementary food services can be effective in reducing childhood undernutrition, ICDS services in this region may consider increasing focus on other cost-effective and underutilized services, including breastfeeding education. Many hypothesized determinants of ICDS centre use in this study proved insignificant, the reasons for which are unclear. However, interventions aiming to increase utilization of ICDS centres in this region may find it beneficial to increase female participation in health care decisions, likely through improved spousal communication and gender relations.

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