

Research Article

Utilisation of Integrated Child Development Services Among Women Beneficiaries in India

Sagar Dhirasrao Ingle^{*} , Dewaram Abhiman Nagdeve 

International Institute for Population Sciences, Department of Fertility and Social Demography, Mumbai, India

Abstract

Integrated Child Development Services (ICDS) program was introduced in India in 1975 and aims to improve early childhood care and development by offering a full range of early education, nutrition, and health services. Addressing the persistent issues of socioeconomic and geographic disparities in service access is essential to ICDS's success. This study focuses on understanding the extent and patterns of ICDS service use among mothers during pregnancy and lactation across different social categories and residential settings, using data from the National Family Health Survey-5 (2019–2021). The findings indicate that approximately 71% of pregnant women reported using at least one ICDS service, a figure that is only marginally higher by about 4 percentage points than that for breastfeeding mothers. However, considerable state-level variations remain evident, with the uptake of nutrition-related and health education services particularly low in several regions. Moreover, the analysis highlights pronounced inequalities across socioeconomic groups, pointing to systemic challenges in ensuring inclusivity within the program. Women from marginalized social groups, lower-income households, and rural areas continue to face barriers in accessing the full spectrum of services. These findings underscore the urgent need for targeted interventions, context-specific strategies, and stronger monitoring mechanisms to bridge existing gaps and enhance the impact of ICDS in promoting maternal and child health outcomes across India.

Keywords

ICDS Utilisation, Pregnant & Breastfeeding Women, India

1. Introduction

The Government of India has launched the Integrated Child Development Services (henceforth ICDS) program on dated 2nd October 1975. [1]. The integrated Child Development Services programme is centrally sponsored scheme implemented by state governments and union territories and aim to address malnutrition and health problems among children and mothers, as well as promote their overall development and well-being. The ICDS includes six components that includes supplementary nutrition, health check-up, pre-school educa-

tion, nutrition and health education and immunization. [2]. The ICDS programs function through the supply chain from district to village level via a Child Development Project Officer (CDPO) located at the block level, which covers around 100000 population in urban and 50000 people in the rural area. There are around 100 ICDS centres (*Anganwadi*) in each rural and urban area and 50 *Anganwadi* centres in the tribal area. However, the actual number of *Anganwadi* centres (AWCs) may differ depending on the locality's geographical location

^{*}Corresponding author: inglesr88@gmail.com (Sagar Dhirasrao Ingle)

Received: 15 September 2025; **Accepted:** 28 September 2025; **Published:** 30 October 2025



Copyright: © The Author(s), 2025. Published by Science Publishing Group. This is an **Open Access** article, distributed under the terms of the Creative Commons Attribution 4.0 License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

and population density [3]. The recent round of National Family Health Survey (NFHS) 2019-21 show that, every third child among 0–59-month age suffered from some type of nutrition deficiency (stunting, wasting, underweight) [4]. Government of India launched another initiative national nutritional mission in 2017 (POSHAN Abhiyan) to reduce the child undernutrition [5]. The ICDS struggling with some of the social norms and challenges that includes caste-based discriminations, economic inequalities, geographical terrain [6]. Diwakar and Mamgain found that, there has been a government failure to promote SC cook in ICDS due to the strong opposition from other caste groups [7]. Other issues in ICDS unskilled Anganwadi workers (AWW), lack of infrastructure and financial allocation indirectly restricting the performance of ICDS [8]. Study by Kandpal shows that utilization of ICDS reduced child undernutrition [9]. However very few studies have shown utilization of ICDS by women beneficiaries. Majority of the study focus on ICDS utilization by child but pregnant and breastfeeding women are also crucial components of ICDS programme in India. To reduced undernutrition among the children it very crucial to utilised ICDS services by pregnant and breastfeeding women. Saiyed and Seshadri (2000) argued that, full utilization of ICDS services significantly led to improvement in child nutrition status [10]. Low-cost changes can make to existing ICDS centres more effective and significantly improve health care of Preschool children as well as mother [11]. The utilization of ICDS is affected by mother's education, caste and economic status of the household [12]. The village level ICDS center increase maternity care to pregnant and breastfeeding women's [13].

2. Methods and Materials

Data Sources

The study used fifth round of Indian National Family Health Survey (NFHS) conducted in 2019-21. The International Institute for Population Sciences Mumbai India, was the key agency for facilitation of the survey. The survey followed two stage sample design in most of the rural areas and three stage sampling design in most of the urban area and cover more than 99% of population. The NFHS collect data on fertility, reproductive health, family planning and other health indicators of women and Under-five children.

Sample Size

The survey used two-stage stratified sample design. Villages served as the Primary Sampling Units (PSUs) in rural regions, while Census Enumeration Blocks (CEBs) were selected for urban regions. Households in both urban and rural areas were chosen for the second phase. We used the NFHS-5, 2019–21 women's file for this study. 724,115 women between the ages of 15 and 49 provided data for the survey. Among them 200386 women who were involved with ICDS were selected for this study.

Statistical Analysis

Using ICDS service is common among the under five children in India but utilisation of ICDS service by Pregnant and Breastfeeding women's is not usually up to the expectation level. The study's use variable was the usage of ICDS services by women beneficiaries with binary outcomes yes or no. With the dichotomous outcome of ICDS service utilisation use (yes or no), we used logistic regression model to determine the ICDS services utilisation by the women beneficiaries in India. Majority of the study shows that social background, education and wealth are the main important factor that determine ICDS utilisation by the beneficiaries like women and children. The study's primary explanatory factor is caste (SC, ST, OBC, Other), religion (Hindu, Muslim, Others), education level (illiterate, primary, secondary, Higher and above), residences (rural, urban), wealth index (poor, middle, rich).

3. Result

Across states Odisha had the highest percentage of ICDS services utilization among pregnant women in rural (95.21%) and urban (89.45%). The lowest utilization was in Arunachal Pradesh urban (13.28%) and rural (26.36%) respectively. The figure also shows that Manipur, Nagaland, Jammu and Kashmir and Andaman and Nicobar Island had less than 50% utilization of ICDS services in urban and rural among pregnant women's. Across states Odisha had the highest percentage of ICDS services utilization among breastfeeding women in rural (97.41%) and urban (91.45%). The lowest utilization was in Nagaland rural (15.08%) and rural (28.32%) respectively. The figure also shows that Arunachal Pradesh, Manipur, Jammu and Kashmir had less than 50% utilization of ICDS services in urban and rural among breastfeeding women's.

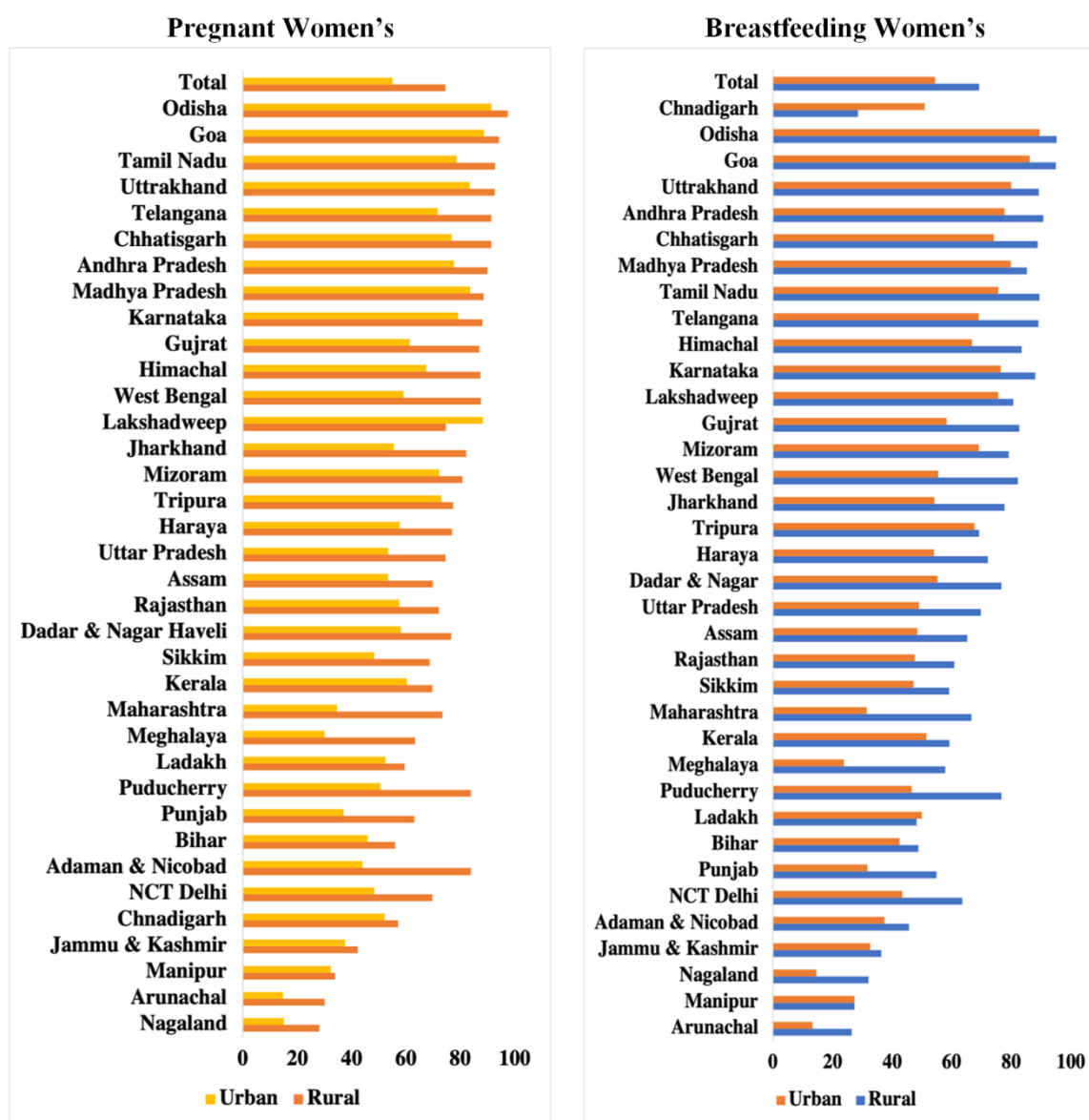


Figure 1. Percentage of State-wise utilization of ICDS service by Pregnant and Breastfeeding women in India 2019-21.

Table 1 shows services utilization (any services) by pregnant women was about more than 15 percentage higher for rural areas (74.19%) than urban areas (58.43%) of pregnant women reported to utilized during the pregnancy. Even while breastfeeding same pattern had observed between rural (69.19%) and urban (54.45%) all over India in any services utilization.

The rural urban gap in services utilization do not shows any major variation in supplementary food, health check-ups and nutrition education services among the pregnant and breastfeeding women in India. Among all services under ICDS supplementary food was higher among pregnant women in both areas rural (95.54%) and urban (93.40%) respectively).

Table 1. Percentage utilization of ICDS services by women (during pregnancy and while breastfeeding) in India, NFHS-5, 2021.

Service Utilization	Rural (N)		Urban (N)		Total (N)	
Pregnant Women						
Supplementary Food	95.54	131634	93.40	25760	95.18	157394
Health Checkups	88.00	24320	88.18	24320	88.03	145576

Service Utilization	Rural (N)		Urban (N)		Total (N)	
Nutrition Education	83.72	107462	86.15	22140	83.75	138497
Any Services	74.19	137784	58.43	27579	71.0	165363
Breastfeeding Women						
Supplementary Food	96.8	124250	95.23	24472	96.53	148722
Health Checkups	86.40	(110901	87.71	22541	86.62	133442
Nutrition Education	83.72	107462	86.15	22140	84.12	129602
Any Services	69.12	128362	54.45	25699	66.14	154061

The similar pattern had observed among breastfeeding women in rural (96.8%) and urban (95.23%) with respect to supplementary food service. With respect to health check-ups and nutrition education services more than eight percent utilization had reported by pregnant as well as breastfeeding

women in both rural and urban areas.

Women from SC household had higher utilization of ICDS among pregnant and breastfeeding women both in rural and urban area (Table 2).

Table 2. Percentage utilization of ICDS services by women based on background characteristics (during pregnancy and while breastfeeding) in India, NFHS-5, 2021.

Background Characteristics	Rural (N)		Urban (N)		Total (N)	
Pregnant Woman's						
Social Group						
SC	78.26	30433	64.78	5804	75.73	36237
ST	71.42	30056	54.33	2736	69.6	32792
OBC	76.35	53142	63.76	12429	73.6	65571
Other	68.71	24 153	48.21	6610	62.96	30763
Religion						
Hindu	78.9	10924	60.97	19874	75.48	129115
Muslim	64.04	15 202	55.99	5576	61.98	20778
Christian	55.04	8630	47.3	1500	53.74	10130
Sikh	62.91	2078	41.14	325	58.71	2403
Buddhist	59.81	51158	46.07	164	57.68	1322
Other	56.56	1475	28.06	140	51.98	1615
Wealth Quintile						
Poorest	72.41	44301	64.31	1429	72.12	45730
Poor	74.35	37165	63.33	2836	73.45	40001
Middle	77.37	28222	63.01	5423	74.63	33645
Richer	75.32	18889	62.66	8782	70.83	27671
Richest	70.83	9207	50.96	9109	59.32	30874
Education						
Illiterate	70.85	32485	59.19	3171	69.63	35656

Background Characteristics	Rural (N)		Urban (N)		Total (N)	
Primary	74.42	19182	63.45	2733	72.85	21915
Secondary	76.05	72306	61.81	15317	73.1	87623
Higher	72.64	13811	49.85	6358	63.49	20169
Family Type						
Nuclear	71.9	52161	58.64	10913	69.19	63074
Joint	75.66	85623	58.3	16666	72.16	102289
Total	74.19	137784	58.43	27579	71.00	165363
Breastfeeding Woman's						
Social Group						
SC	72.21	28080	59.58	5338	69.98	33418
ST	67.69	28485	50.48	2542	65.85	31027
OBC	71.21	49564	59.99	11694	68.76	61258
Other	63.25	22233	44.68	6125	58.04	28358
Religion						
Hindu	73.69	102034	56.94	18560	70.5	120594
Muslim	58.92	13985	53.22	5208	57.25	19193
Christian	51.63	8096	43.58	1382	50.28	9478
Sikh	54.71	1807	34.81	275	50.87	2082
Buddhist	54.91	1063	41.85	149	52.87	1212
Other	52.8	1377	25.05	125	48.34	1502
Wealth Quintile						
Poorest	67.41	41245	60.49	1344	67.17	42589
Poor	69.03	34504	59.36	2658	68.23	37162
Middle	72.41	26413	58.92	5071	69.84	31484
Richer	70.76	17745	58.5	8200	66.37	25945
Richest	65.05	8455	47.14	8426	54.68	16881
Education						
Illiterate	65.21	29900	54.83	2937	64.12	32837
Primary	69.11	17813	57.65	2483	67.47	20296
Secondary	71.23	67725	58.02	14379	68.5	82104
Higher	67.98	12924	46.26	5900	59.26	18824
Family Type						
Nuclear	67.26	48796	54.65	10170	54.45	25699
Joint	70.3	79566	54.32	15529	69.12	128362
Total	69.12	128362	54.45	25699	66.14	154061

Note: SC: Scheduled Caste, ST: Scheduled Tribe, OBC: Other backward Class

At national level also (75.7%) percent pregnant and 70 percent breastfeeding women received benefits of ICDS

among the SC social group women's. There are 12 percentage gaps between lowest and highest utilization of ICDS among pregnant women in social group at national level. Similar 10 percentage gaps had observed among breastfeeding women also. The same pattern had been observed in rural and urban residence among pregnant and breastfeeding women's. Across the religion groups Hindu pregnant women highest rural (78.9%), urban (61%) and total (75.5%). Same pattern had observed among breastfeeding women rural (73.7%), urban (57%) and total (70.5%). Other than Hindu religion pregnant women show lower utilization of ICDS services lies in range of (51- 62%) at total and rural (54-64%). In urban area 27 percentage difference had observed from 28 percent to 56 percent. In case of breastfeeding women similar pattern observe highest utilization in rural (73.7%), urban (57%) and total (70.5%). Whereas Muslim (57%), Buddhist (52.9%), Christian and Sikh (50%), and Other (48.3%). More than 50 percent of pregnant women other than Hindu religion utilizing services of ICDS in rural areas. While only Muslim breastfeeding women shows more than 50 percent of ICDS utilization along with Hindu women. Rest of Christian (43.6%), Buddhist (41.9%), Sikh (34.8%) and Other (25%) breastfeeding women were utilizing services of ICDS. Across all

wealth quintile more than 70 percent of ICDS utilization among pregnant women at national and in rural areas, while in urban area it goes down to 61 percent. More than 70 percent of breastfeeding women used ICDS services by middle and richer quintile and rest of less than 70 percent in rural areas. Lower utilization of ICDS services shown at national level and urban area among breastfeeding women as compare to rural area. In level of education similar pattern observed with respect to rural area more than 70 percent of ICDS services utilization by pregnant women, whereas in urban primary educated had highest (63.4%) and lowest higher educated (49.8%) pregnant women. Among the breastfeeding women the utilization of ICDS services increase from illiterate (65.2%) to secondary (71.2%) and it decline to (68%) among higher educated women in rural area. Similar pattern had observed at national and urban area among the breastfeeding women. Across family in joint types family higher utilization of ICDS services had observed in both of pregnant (72.2%) and breastfeeding (69.1%) women at national, (75.6%) and (70.3%) in rural areas. Whereas in urban area nuclear family shows higher (58.6%) pregnant and (54.6%) among breastfeeding women.

Table 3. Odds Ratio of Utilisation of ICDS services by Pregnant and Breastfeeding women 2019-21.

Characteristics	Pregnant Women			Breastfeeding Women		
Caste Other @	Nutrition Service (AOR)	Health Check (AOR)	Counselling (AOR)	Nutrition Service (AOR)	Health Check (AOR)	Counselling (AOR)
SC	1.49***	1.55***	1.47***	1.15***	1.26***	1.2***
ST	1.86***	1.82***	1.94***	2.14***	1.45***	1.63***
OBC	1.35***	1.49***	1.42***	1.02	1.33***	1.25***
Religion Other @						
Hindu	3.17***	3.93***	3.52***	1.14	2.86***	2.22***
Muslim	2.15***	2.42***	2.29***	1.06	1.94***	1.63***
Christian	1.01	.70***	.78***	1.37	.52***	.59***
Sikh	1.66***	1.80***	1.66***	1.37	1.59***	1.31***
Buddhist	1.25***	1.42***	1.33***	1.75	1.51***	1.44***
wealth Rich@						
Poor	1.09	.91***	.86***	1.15***	.74***	.69***
Middle	1.21***	1.14***	1.12***	1.31***	0.94	0.94
Residence Urban@						
Rural	1.90**	1.75***	1.65***	1.33***	0.96	.92***
Education Illiterate @						
Primary	1.32***	1.24***	1.25***	1.32***	1.00	1.05
Secondary	1.40**	1.25***	1.32***	1.58***	1.00	1.13***

Characteristics	Pregnant Women			Breastfeeding Women		
	Nutrition Service (AOR)	Health Check (AOR)	Counselling (AOR)	Nutrition Service (AOR)	Health Check (AOR)	Counselling (AOR)
Caste Other @						
Higher	1.02	.930***	0.99	1.20***	.91**	1.00

@Reference category, AOR Adjusted odds ratio, *** $p < 0.01$.

The adjusted odds ratios (AORs) from logistic regression models that look at the factors influencing pregnant and lactating women's use of ICDS services are shown in (Table 3). Supplementary nourishment, health examinations, and counselling are among the services that have been examined. Caste, religion, wealth, type of habitation, and level of education are used to display the results. Caste was found to be a significant predictor of ICDS use. Compared to the reference category (Others), women from Scheduled Castes (SC) had a much higher likelihood of utilizing services. SC mothers were 1.55 times more likely to have health checkups and 1.49 times more likely to receive supplemental nutrition during pregnancy. With 1.15 and 1.26 times higher likelihood of receiving nutrition and health check-ups, respectively, breastfeeding mothers showed a similar pattern. Scheduled Tribe (ST) women were most likely to use ICDS services. Breastfeeding ST women were more than twice as likely to receive supplemental nutrition (AOR = 2.14, $p < 0.001$), and pregnant ST women were almost twice as likely to seek counselling services (AOR = 1.94, $p < 0.001$). While their advantage waned for nursing nutrition, when no discernible difference was found, in (OBC) also demonstrated significantly better likelihood of obtaining services during pregnancy. In case religion Hindu women were more than three times as likely to receive nutrition (AOR = 3.17, $p < 0.001$) and health check-ups (AOR = 3.93, $p < 0.001$), indicating the highest likelihood of service consumption during pregnancy. During the breastfeeding phase, this benefit for health examinations (AOR = 2.86, $p < 0.001$) and counselling (AOR = 2.22, $p < 0.001$). Additionally, Muslim women were more likely than other women to use services during pregnancy, with 2.42 times higher odds of health checkups and 2.29 times higher odds of counselling. Breastfeeding women continued to have a usage advantage, albeit it was less noticeable. On the other hand, Christian women consistently reported lesser use. The likelihood of Christian women getting health checkups (AOR = 0.70, $p < 0.001$) and counselling (AOR = 0.78, $p < 0.001$) was significantly lower during pregnancy. The likelihood of receiving counselling (AOR = 0.59, $p < 0.001$) and health examinations (AOR = 0.52, $p < 0.001$) was approximately half for breastfeeding women. Though the impact varied by service, Sikh pregnant women nutrition, counselling services equally (AOR = 1.55, $p < 0.001$) and health check-up (AOR = 1.55, $p < 0.001$), whereas breastfeeding women health check (AOR = 1.59, $p < 0.001$), counselling (AOR = 1.31, $p < 0.001$)

time higher. Buddhist women generally used more services than the Other category, especially during pregnancy. Compared to pregnant women from wealthy homes, those from middle-income households were more likely to use ICDS services. Poor women were more likely to seek counselling (AOR = 0.86, $p < 0.001$) and health examinations (AOR = 0.91, $p < 0.001$). Poor families were significantly less likely to get health check-ups (AOR = 0.74, $p < 0.001$) and counselling (AOR = 0.69, $p < 0.001$), but much more likely to receive supplemental nutrition (AOR = 1.15, $p < 0.001$) for breastfeeding women. Pregnant women in rural areas were almost twice as likely to receive health checkups (AOR = 1.75, $p < 0.001$) and supplemental nutrition (AOR = 1.90, $p < 0.01$) as their urban counterparts. Among nursing moms, rural mothers remained significantly more likely to obtain supplemental nutrition (AOR = 1.33, $p < 0.001$). Compared to illiterate women, pregnant women with elementary and secondary education had consistently greater likelihood of using all services. The likelihood of receiving nutrition was 1.40 times higher for women with a secondary education ($p < 0.01$), and the likelihood of receiving counselling was 1.32 times higher ($p < 0.001$). Higher education, however, displayed weaker or even adverse correlations.

Health checkup was lower among pregnant women with higher levels of education (AOR = 0.93, $p < 0.001$). While the nutrition services primary (AOR = 1.32, $p < 0.001$), secondary (AOR = 1.58, $p < 0.001$) Higher education (AOR = 0.86, $p < 0.001$) continued to improve among nursing mothers.

4. Discussion

Significant differences in the use of ICDS services by pregnant and lactating women in India are highlighted by this study. As a result of ICDS outreach's rural concentration, service acceptance was often higher in rural than in urban regions. Concerns regarding flaws in the program's conception and execution are raised by the fact that a sizable percentage of eligible women are still not receiving ICDS benefits [14]. These results imply that although while ICDS is widely used, its real reach is still below that of universal coverage.

Additionally, differences in stage-wise consumption were noted. Utilization levels were lower than anticipated in states like Uttar Pradesh and Bihar, which have a high burden of maternal and child health issues. This suggests that local

implementation is lacking. Additionally, although more people used supplemental nutrition services, much less was used for other components, such as health examinations, counseling, and nutrition instruction. This pattern suggests a significant dependence on dietary supplements and a relative disregard for the wider health and educational roles of ICDS [15]. There were also noticeable disparities by social group. Higher use rates were observed by OBC and Scheduled Caste women, indicating that ICDS is at least partially successful in reaching these underprivileged groups. In spite of their lower maternal health indicators, Scheduled Tribe women continued to use the program at a relatively low rate. This suggests that ICDS coverage is problematic in isolated and tribally populated areas [16]. There were notable differences in religion. Utilization was significantly lower among all other religious groups except Hindu women, which can be due to variations in cultural acceptance, accessibility, or awareness of ICDS programs. Similarly, because they might rely on private health systems, women from affluent households both in urban and rural areas were less likely to use ICDS services, especially supplemental nutrition. However, wealthier groups continued to have higher access to counselling and health examinations, highlighting the influence of socioeconomic position on service selection. The use of ICDS was similarly influenced by educational attainment. Primary and secondary school-educated women were more likely to use ICDS services, demonstrating the beneficial influence of basic education in encouraging health-seeking behaviours. Higher educated women, on the other hand, were less dependent on ICDS, most likely as a result of their choice for private healthcare. Last but not least, structural obstacles including inadequate facilities, a lack of space, subpar services, and a lack of variety in supplemental nutrition were also noted as potential causes of the decreased uptake of ICDS [17]. The efficiency of ICDS is weakened by these programmatic issues, which also contribute to the observed discrepancies in utilization.

5. Conclusion

The usage of ICDS services by Indian women is examined in this study according to a variety of criteria, including caste, income, education, and religion. The survey suggests that Indian women in the wealthier and better-educated groups might use services more effectively. Indicators of mother and child health would improve if ICDS services were improved and approached holistically, encompassing early childcare, nutrition and health education, and nutrition supplements. Furthermore, it is imperative that area-specific services prioritize improving the skills of Anganwadi workers (AWWs) in both rural and urban areas, enhancing infrastructure, promoting community involvement, and addressing local cultural issues would provide a solid foundation for the smooth, long-term operation of ICDS services. Finally, increasing the accessibility of data on particular service-related subjects, such as AWW education and skill levels and reasons for not

using ICDS benefits, may provide useful information for programming.

Abbreviations

AWS	Anganwadi Worker
CDPO	Child Development Project Officer
ICDS	Integrated Child Development Services
SC	Scheduled Caste
ST	Scheduled Tribe
OBC	Other Backward Class

Author Contributions

Sagar Dhirasrao Ingle: Conceptualization, Data curation, Formal Analysis, Methodology, Software, Visualization, Writing – original draft, Writing – review & editing

Dewaram Abhiman Nagdeve: Conceptualization, Investigation, Methodology, Resources, Supervision, Validation, Writing – review & editing

Conflicts of Interest

The authors declare no conflicts of interest.

References

- [1] Aayog, N. I. T. I. (2015). A quick evaluation study of Anganwadis under ICDS. *Programme Evaluation Organisation. New Delhi: Government of India.*
- [2] Gupta, A., Gupta, S. K., & Nongkynrih, B. (2013). Integrated child development services (ICDS) scheme: a journey of 37 years. *Indian journal of community health*, 25(1), 77-81.
- [3] Chudasama, R. K., Kadri, A. M., Verma, P. B., Vala, M., Rangoonwala, M., & Sheth, A. (2015). Evaluation of nutritional and other activities at Anganwadi centers under integrated child development services program in different districts of Gujarat, India. *J Med NutrNutraceut*, 4, 101-6. <https://doi.org/10.4103/2278-019X.141543>
- [4] International Institute for Population Sciences (IIPS) and ICF (2019-21). National Family Health Survey.
- [5] Aayog, N. I. T. I. (2017). National nutrition strategy. *Government of India.*
- [6] Thorat, S., & Sadana, N. (2009). Discrimination and children's nutritional status in India. *IDS Bulletin*, 40(4), 25-29.
- [7] Mamgain, R. P., & Diwakar, G. D. (2012). Elimination of identity - based discrimination in food and nutrition programmes in India. *IDS Bulletin*, 43, 25-31. <https://doi.org/10.1111/j.1759-5436.2012.00343.x>
- [8] Davey, A., Davey, S., & Datta, U. (2008). Perception regarding quality of services in urban ICDS blocks in Delhi. *Indian journal of public health*, 52(3), 156-158.

- [9] Kandpal, E. (2011). Beyond average treatment effects: distribution of child nutrition outcomes and program placement in India's ICDS. *World Development*, 39(8), 1410-1421. <https://doi.org/10.1016/j.worlddev.2010.12.013>
- [10] Saiyed, F., & Seshadri, S. (2000). Impact of the integrated package of nutrition and health services. *The Indian Journal of Pediatrics*, 67(5), 322-328. <https://doi.org/10.1007/BF02820677>
- [11] Kerber, K. J., de Graft-Johnson, J. E., Bhutta, Z. A., Okong, P., Starrs, A., & Lawn, J. E. (2007). Continuum of care for maternal, newborn, and child health: from slogan to service delivery. *The Lancet*, 370(9595), 1358-1369. [https://doi.org/10.1016/S0140-6736\(07\)61578-5](https://doi.org/10.1016/S0140-6736(07)61578-5)
- [12] Jain, M. (2015). India's struggle against malnutrition—is the ICDS program the answer? *World Development*, 67, 72-89. <https://doi.org/10.1016/j.worlddev.2014.10.006>
- [13] Shariff, A., & Singh, G. (2002). *Determinants of maternal health care utilisation in India: evidence from a recent household survey* (No. 85). New Dehli: National Council of Applied Economic Research.
- [14] Lokshin, M., Das Gupta, M., Gragnolati, M., & Ivaschenko, O. (2005). Improving child nutrition? The integrated child development services in India. *Development and Change*, 36(4), 613-640. <https://doi.org/10.1111/j.0012-155X.2005.00427.x>
- [15] Deolalikar, A. B. (2005). *Attaining the millennium development goals in India: reducing infant mortality, child malnutrition, gender disparities and hunger-poverty and increasing school enrollment and completion* (pp. xix+-139).
- [16] Agnihotri, S. P., Pandey, D. N., & Nandan, D. (1984). The impact of rural health services in Agra sub division. *Indian Journal of Public Health*, 28(1), 25-29.
- [17] Jain, M., Nandan, D., & Misra, S. K. (2006). Qualitative assessment of health seeking behaviour and perceptions regarding quality of health care services among rural community of district Agra. *Indian Journal of community medicine*, 31(3), 140.