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Unlocking Potential: Investigating the Impact of Education among Rural Women Agricultural Workers of Puducherry

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ABSTRACT

Education is a powerful tool that improves socio-economic conditions and empowers individuals, especially women. However, women face gender disparities resulting in lower literacy rates compared to men. Besides understanding the educational status of women agricultural workers and their accessibility to schools and colleges, this study investigated the impact of education on their income levels, language proficiency in mother tongue and English and their preferences to spend more on their children education. Using a mixed-methods approach, data were collected and analysed from a random sample of 5,044 rural women agricultural workers across 98 revenue villages in the Union Territory of Puducherry. The findings revealed that half of the respondents completed education ranging from 6th to 10th class, where as one out of every four respondents were illiterates and a small percentage possessed higher qualifications of a degree and above. Most of the respondents had access school and six out of ten had access to college within 5 km range. The study established a positive correlation between education level and both individual and family income and a higher level of language proficiency in both the mother tongue and English. The educated rural women workers showed a preference for private schools to educate their children, indicating a growing inclination to spend more on education.

Keywords: *Education; Rural women; Agricultural worker; Literacy rate; Income level; Women empowerment; Puducherry.*

INTRODUCTION

Literacy and basic education are fundamental rights that play a crucial role in personal development and socio-economic empowerment, with a particular emphasis on women. Education not only enhances decision-making abilities, self-realization and freedom of thought but also enables active participation in household affairs and community contributions. However, rural women, including those in the agricultural sector, face significant challenges when it comes to accessing education. While there are untrained women in farming, there are also skilled and educated women, highlighting the diversity within this group. Gender disparities, social norms and limited access pose obstacles for rural women engaged in agricultural labour. Education is a transformative tool that equips rural women with essential skills, knowledge and capabilities, enabling them to pursue higher-

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paying jobs, adopt modern farming techniques and engage in entrepreneurial activities. By enhancing technical competencies, critical thinking, problem-solving and decision-making skills, education empowers rural women to negotiate fair wages, secure improved income prospects and contribute to their own economic empowerment.

Scholarly research has consistently highlighted the intrinsic value of education and its potential to drive societal change. Duflo's research (2003) demonstrated how targeted educational interventions can improve learning outcomes and reduce poverty. Quisumbing (2003) and Agarwal (1994) explored how education empowers women in rural farming communities by enhancing agricultural productivity, income generation and decision-making power. Narayanan (2017) focused on the transformative impact of education on sustainable farming practices. Doss (2013) examined how education empowers women to negotiate for resources within households, while Elson (1999) emphasized the importance of investing in quality education to promote gender-responsive economic development, and Kabeer (2005) highlighted the transformative potential of education in enhancing women's well-being within the context of gender, poverty and education. Vaidyanathan (2009) shed light on the positive relationship between women's education and their economic outcomes. Collectively, the works of these scholars underscore the critical role of education. Over the past three decades, from 1991 to 2021, India has witnessed a steady increase from 52.21 per cent to 77.70 per cent in literacy rates indicating significant progress and a greater emphasis on promoting education. The female literacy rate has shown a substantial increase from 39.29 per cent in 1991 to 70.30 per cent in 2021, signifying notable advancements in female education and empowerment. Although the increase in literacy rates has been consistent, recent years have seen a slight deceleration due to near reaching saturation levels. Puducherry has consistently shown higher male and female as well as total literacy rates, indicating successful educational initiatives and focused efforts. In both India and Puducherry, the literacy percentage among males has been higher than that among females in each census year. A gender gap in literacy rates persists both in India and UT of Puducherry, albeit gradually reducing over time, reflecting positive efforts towards addressing the disparity. Many factors contribute to the educational disadvantage faced by women, highlighting the need for targeted interventions to address these challenges and promote gender equality in education.

A comprehensive study focusing on the educational status of women agricultural workers, their accessibility to educational infrastructure and the impact of education on their language skills, on their incomes and their preferences to spend more on their children , therefore, holds significant value. This data will be instrumental for policymakers in formulating targeted interventions to address gender inequalities, and improve overall livelihoods. Additionally, understanding the prevailing conditions can guide community development efforts and serve as a vital baseline for future research and advocacy, ultimately contributing to a more equitable and prosperous society.

The Union Territory of Puducherry, consists of 129 revenue villages distributed in Puducherry and Karaikal regions. According to the 2011 Census, Puducherry had a population of 12, 47,953, with women constituting 6,35,442 of the total. In 2019, the Department of Economics & Statistics, Govt. of Puducherry, estimated that 50,607 rural women were actively engaged in agricultural labour in the region.

The present study made an attempt to understand the education status of women agricultural workers in the UT of Puducherry, their accessibility to schools and colleges, the impact of education on their income, on their language skills in both mother tongue and English and the preference to spend more on children education with the following objectives:

1. To understand the educational status of women agricultural workers in the region.
2. To measure their accessibility to educational infrastructure in the region.
3. To study the impact of education on their language skills, both in their mother tongue and English
4. To study the impact of education on their individual and family incomes.
5. To study the impact of education on their preferences to spend more on their children's education

METHODOLOGY

The study was conducted within the Union Territory of Puducherry, consisting of 129 revenue villages distributed in Puducherry and Karaikal regions. As per the estimates (2019) of the Department of Economics & Statistics, Govt. of Puducherry, 50,607 rural women are actively engaged in agricultural labour in the region. Random sampling technique was used to select sample of 5,044 women agricultural workers from all 98 revenue villages located in the rural areas of Pondicherry and Karaikal regions. The **random sampling technique was chosen to** ensure the representativeness and minimized bias of the sample, thus enabling the generalization of findings to the broader population of women agricultural workers in the region. A mixed-methods research strategy was used for this study. A structured questionnaire was designed to gather comprehensive data on various aspects such as educational status, accessibility to schools and colleges, language skills in both mother tongue and English, individual and family incomes and their preferences to spend more on children education among the respondents. In addition to the quantitative data, in-depth interviews were conducted with select participants. These interviews aimed to offer deeper insights into the parameters of research. This qualitative dimension complemented the quantitative findings, enriching the understanding of the research objectives. The responses given by the respondents were collected using google forms and the data were analysed.

FINDINGS AND DISCUSSION

Educational Status of Women Agricultural Workers

Table - 1 provides the descriptive statistics for the educational status of the women agricultural workers. The data reveal that among the respondents, 3.01 per cent have a degree or above, indicating a higher level of formal education. Another 2.84 per cent have completed education beyond the 10th grade, including ITI and diploma qualifications. The largest category is individuals who have completed education between the 6th and 10th grades, accounting for 49.76 per cent of the respondents. Additionally, 19.53 per cent have education up to the 5th grade, while 24.86 per cent of the respondents are categorized as illiterate. It also demonstrates the diverse educational background of the respondents. The presence of individuals with degrees and above signifies the existence of a segment with higher levels of education and potential specialized skills. However, a significant proportion of the respondents fall into the categories of 6th to 10th grade education and below, indicating a need for further educational opportunities and skill development. More significantly, there is a considerable proportion of respondents with education only up to the 5th

class or no education at all that requires serious attention. Figures in Table – 1 also highlight the importance to improve the educational status of the respondents. Firstly, it is essential to focus on improving access to education and reducing the illiteracy rate through initiatives such as adult literacy programmes, providing functional literacy skills and promoting lifelong learning opportunities. Secondly, efforts should be directed towards enhancing vocational training programmes and diploma courses to cater to the individuals who have completed education beyond the 10th grade to enable them to acquire specialized skills and enhance their employability. Furthermore, there should be a continued emphasis on improving the quality of education across all levels, ensuring comprehensive and inclusive education that equips individuals with the necessary knowledge and skills for personal and professional growth. Additionally, promoting awareness about the importance of education, particularly among parents and the community can foster a supportive environment for education and encourage higher enrolment rates.

Table 1: Educational status of Women Agricultural Workers

Sl.No.	Educational Qualification	Frequency	Percentage
1	Degree & above	152	3.01
2	Above 10th Class, ITI & Diploma	143	2.84
3	6th - 10th Class	2510	49.76
4	Up to 5th Class	985	19.53
5	Illiterate	1254	24.86
	Total	5044	100

Proximity to Nearest School and College for the Respondents

Table -2 presents the comparison of proximity to the nearest school and college based on distance in km and the number of respondents and the corresponding percentages for each category.

Table 2: Proximity to Nearest School and College for the Respondents

Sl.No.	Distance in Km	School		College	
		Frequency	Percentage	Frequency	Percentage
1	<1	2130	42.23	784	15.54
2	1 to 2	1834	36.36	756	14.99
3	3 to 5	986	19.55	1518	30.10
4	6 to 10	94	1.86	1327	26.31
5	>10	0	0	659	13.07
	Total	5044	100.00	5044	100.00

All the respondents had access to schools within a 10 km radius, with 78.59 per cent residing within 1 to 2 km or less than 1 km from the nearest school. While 42.23 per cent reported less than 1 km, the remaining 36.36 per cent reported distance of 1 to 2 km. This indicates relatively favourable proximity to primary education. However, there are variations in proximity, with 19.55 per cent living between 3 to 5 km and 1.86 per cent residing within 6 to 10 km, while none of the respondents live beyond 10 km from the nearest school. For colleges, the distribution is different, with 30.10 per cent of respondents residing between 3 to 5 km from the nearest college and 26.31 per cent living within 6 to 10 km. Additionally, 13.07 per cent of respondents reside more than 10 km away from the nearest college. It is worth mentioning that none of the respondents live within less than 1 km from the nearest college. Regarding the proximity to the nearest college, a similar pattern emerges. The largest percentage of respondents (30.10%) reported a distance of 3 to 5 km. The category of 1 to 2 km accounted for 14.99 per cent of the respondents, while 15.54 per cent reported a distance of less than 1 km. A considerable proportion of respondents (26.31 %) had to travel a distance of 6 to 10 kms. The highest distance category, greater than 10 km, had a percentage of 13.07 per cent. Table – 2 highlights that there is generally good accessibility to primary schools within the surveyed area. However, there are challenges in terms of proximity to colleges, with a significant proportion of respondents living farther away suggesting potential barriers to higher education opportunities for individuals residing in these areas. This underscores the importance of improving educational accessibility. Firstly, efforts should focus on expanding higher education options by establishing new colleges or satellite campuses, particularly in regions with a higher concentration of individuals living further away from colleges. By doing so, accessibility can be enhanced, providing more opportunities for pursuing higher education. Secondly, investing in transportation infrastructure, such as school bus services or improved public transportation, is crucial in alleviating the commuting burden for students residing at greater distances from schools and colleges. This would ensure reliable and efficient transportation options, making it more convenient for students to reach their educational institutions. Additionally, conducting comprehensive need assessments to identify areas or regions with limited access to schools or colleges is vital. This would facilitate targeted interventions, such as establishing additional educational institutions in underserved areas. Lastly, fostering collaboration among educational institutions, government bodies and community organizations is essential. Through collective efforts, resources can be pooled, expertise can be shared and initiatives can be developed to bridge accessibility gaps and promote equitable access to education for all individuals.

Language Skills of Women Agricultural Workers

Table - 3 shows the descriptive statistics for the language skills among the respondents. All rural women agricultural workers possess the ability to speak in their mother tongue indicating that verbal communication in their native language is universally prevalent among these individuals. The mother tongue holds significant importance as the primary means of communication for these rural women agricultural workers.

Table 3: Language Skills of the Respondents

Sl.No.	Skill	Mother Tongue		English	
		Frequency	Percentage	Frequency	Percentage
1	No Skill	0	0	3917	77.66
2	Speak	2126	42.15	200	3.97
3	Speak and Read	409	8.11	249	4.94
4	Speak, Read & Write	2509	49.74	678	13.44
	Total	5044	100.00	5044	100.00

A substantial majority of the respondents, comprising 57.85 per cent, reported the ability to both speak and read in their mother tongue suggesting a higher level of language skills. It signifies that these individuals have acquired the ability to access and understand written resources, expanding their opportunities for information gathering and knowledge acquisition. Further, 49.74 per cent of the respondents possess the skills of speaking, reading and writing in their mother tongue. This represents a significant proportion of rural women agricultural workers who possess comprehensive language proficiency in their native language. It is also observed that a notable percentage of rural women agricultural workers (22.34 %) possess the ability to speak in English indicating that a significant portion of the respondents have acquired some level of spoken language proficiency in English. Almost 18.39 per cent of the respondents reported the ability to both speak and read in English and 13.44 per cent of the respondents possess the skills of speaking, reading and writing in English. This indicates that a notable proportion of rural women agricultural workers possess comprehensive English language skills. However, the majority of respondents (77.66 %) indicated that they have no skills in the English language. This highlights the need to strengthen support for the mother tongue through cultural programmes and community initiatives, develop literacy programmes focused on reading and writing skills in the mother tongue, provide tailored English language training with practical agricultural vocabulary, conduct communication skills workshops for effective verbal communication, introduce digital literacy initiatives for accessing online resources and marketplaces, incorporate language development in women empowerment programmes, leverage mobile-based language learning platforms and foster collaborations among government agencies, NGOs, agricultural institutions, and community organizations to design and implement effective language development programmes.

School Enrolment of Respondents' Children

Table 4 presents the descriptive statistics for the types of schools where the respondents' children were enrolled.

Table 4: Types of Schools enrolled by the Respondents' Children

Sl. No.	Schools	Frequency	Percentage
1	Government	3097	61.40
2	Private	578	11.46
3	Both	115	2.28
4	None	1254	24.86
	Total	5044	100.00

The data reveal that the majority of respondents (61.40 %) have their children enrolled in government schools while only a smaller proportion of respondents, (11.46%) have their children attending private schools. Only a small percentage, 2.28 per cent, has children studying in both government and private schools. Surprisingly, a significant number of respondents, 24.86 per cent, reported that their children are not enrolled in any school. It highlights the dominance of government schools in providing education to children. This indicates a reliance on public education systems and the importance of government schools in catering to the educational needs of the community. However, the substantial proportion of respondents reporting that their children are not enrolled in any school raises concerns about educational access and opportunities for these children. Table 4 calls for strengthening the infrastructure and resources of government schools, increasing awareness about education importance, addressing barriers like financial constraints and transportation issues, collaborating with private schools for scholarships or subsidized education, enhancing education quality in both government and private schools, and conducting regular monitoring to identify and enrol out-of-school children.

Comparison of Education level with Income and School Enrolment of Children

Table 5 presents the frequency distribution of education level, income, and the percentage of children studying in government and private schools. The data shows that respondents with higher educational levels, such as a degree and above, have an average individual income of 5479 rupees and an average family income of 8450 rupees. Among this group, 44.44 per cent of children are studying in government schools, while 55.56 per cent are in private schools.

Table 5: Comparison of Education level with Income and School Enrolment of Children

Education level	Frequency	Average individual income in rupees	Average family income in rupees	Percentage of children studying in Govt schools	Percentage of children studying in Private schools
Degree & above	152	5479	8450	44.44	55.56
Above 10th Class, ITI & Diploma	143	5118	7804	68.38	31.62
6th - 10th Class	2510	3306	6921	79.35	20.65
Up to 5th Class	985	3242	6721	94.44	5.56
Illiterate	1254	2481	5327	95.74	4.26

For individuals with an educational level above the 10th class, ITI, and diploma, the average individual income is 5118 rupees, and the average family income is 7804 rupees. Here, 68.38 per cent of children attend government schools, while 31.62 per cent go to private schools. In the 6th to 10th class category, with the highest number of respondents, the average individual income is 3306 rupees, and the average family income is 6921 rupees. The majority of children in this group, 79.35 per cent, are studying in government schools, with only 20.65 per cent attending private schools. For those with education up to the 5th class, the average individual income is 3242 rupees, and the average family income is 6721 rupees. A significant percentage, 94.44 per cent, of children in this category is enrolled in government schools, while only 5.56 per cent are in private schools. Finally, among the illiterate respondents, the average individual income is 2481 rupees, and the average family income is 5327 rupees. The majority of children in this group, 95.74 per cent, are studying in government schools, with only 4.26 per cent attending private schools.

It reveals that as the education level increases, both the average individual income and average family income tend to increase as well. This demonstrates a positive correlation between education level and income among rural agricultural women workers. Similarly, it also reveals that as the education level increases, there is a gradual shift towards a higher percentage of children studying in private schools. This trend is evident across all education levels, reflecting a preference to spend more on children education as education levels increase. The findings indicate that there is a need to improve educational opportunities for children in terms of enhancing government schools' quality and accessibility, addressing financial barriers to private education, emphasizing skill development and vocational training, increasing parental awareness and engagement, fostering public-private partnerships, implementing monitoring and evaluation systems, and engaging community support.

CONCLUSION

In conclusion, the understanding of educational status, accessibility to schools and colleges and investigation of the impact of education on individual and family incomes, on language skills and on their preferences to spend more on children education among rural women agricultural workers reinforces the notion that education is the key to unlocking their vast potential. The study has provided valuable insights into the education status of women agricultural workers and their proximity to schools and colleges in the rural areas of UT of Puducherry that can be not only used to improve the educational infrastructure in the region through targeted interventions but also serve as a base line comparison for other areas. The study has also revealed a positive correlation between education and income levels, language skills and preference to spend more on children education which has universal application. The study confirmed that as education levels increase, the individual and family incomes, the language skills and the preference to spend more on children education also increase. Therefore, to unlock the full potential of rural women agricultural workers, investment in their education is the key that will have catalytic effect on overall empowerment of rural women agricultural workers.

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