

Eco-Friendly Practices Among Adults in Cheranalloor Grama Panchayat, Ernakulam: A Descriptive Survey

Silji Sebastian¹, Fincy Joseph K², Deepamol K S³

¹Associate Professor, Department of Community Health Nursing, Lourdes College of Nursing, Kerala University of Health Sciences, Ernakulam, India.

²Lecturer, Department of Community Health Nursing, Lourdes College of Nursing, Kerala University of Health Sciences, Ernakulam, India.

³Lecturer, Department of Community Health Nursing, Lourdes College of Nursing, Kerala University of Health Sciences, Ernakulam, India.

Corresponding Author: Silji Sebastian

DOI: <https://doi.org/10.52403/gijhsr.20260333>

ABSTRACT

Introduction: Eco-friendly practices are essential for promoting environmental sustainability, particularly in rural communities where lifestyle and resource utilization directly impact the ecosystem. Understanding these practices among adults is crucial for planning effective interventions. The objectives of the study were to assess eco-friendly practices among adults and to determine the association between eco-friendly practices and selected socio-demographic variables.

Material and Methods: A descriptive cross-sectional study was conducted among 200 adults residing in rural areas of Ernakulam. Participants were selected using a convenience sampling technique. Data were collected using a self-structured questionnaire assessing socio-demographic variables and eco-friendly practices in domains such as waste management, energy conservation, water conservation, and biodiversity protection. Data were analyzed using descriptive and inferential statistics.

Results: The findings revealed that 60.5% of participants had moderate eco-friendly

practices, 38.0% demonstrated good eco-friendly practices, and 1.5% exhibited poor eco-friendly practices. The overall mean and standard deviation score of eco-friendly practices was 86.96 ± 8.74 . Domain-wise analysis indicated that waste management had the highest mean score (25.99 ± 2.62), followed by energy conservation (23.38 ± 2.67) and water conservation (19.78 ± 2.72), while biodiversity protection had the lowest mean score (17.83 ± 4.03). A significant association was found between gender and eco-friendly practices ($\chi^2 = 6.77$, $p = 0.03$), whereas no significant association was observed with other socio-demographic variables.

Conclusion: The study concluded that eco-friendly practices among adults were predominantly moderate, with better performance in waste management and lower engagement in biodiversity protection. Targeted awareness programs and community-based interventions are needed to enhance sustainable behaviours.

Keywords: Eco-friendly practices; Rural adults; Sustainability; Waste management; Biodiversity

INTRODUCTION

Environmental problems arising from agriculture and rural living have drawn increasing scholarly attention worldwide.¹ The twenty-first century has witnessed an unprecedented acceleration in environmental degradation, driven largely by human activity. Climate change, biodiversity loss, resource depletion, and the accumulation of plastic waste have placed ecological sustainability at the forefront of global discourse.² Moslehpour et al. (2023) noted that consumer household purchases contribute to roughly 40% of environmental harm, compelling society's stakeholders to embrace eco-friendly technology and products to counter the negative impacts of conventional items on humans and ecosystems. Furthermore, changing consumption patterns and the rise of conscious consumption of environmentally friendly products are driven by novelty behaviours and their environmentally friendly attributes, fostering a sustainable society.³

Household food waste brings substantial economic, social, and environmental costs, and a growing amount of food and household waste represents a challenge for the global community, demanding a better understanding of what motivates consumers to either segregate their waste sustainably or engage in unsustainable waste disposal practices. Minimizing the waste generated by households requires greater attention, because failing to do so may lead to economic losses and adverse environmental impacts, whereas separating household waste is necessary for sustainable waste management and resource conservation.⁴

The ways of understanding and analyzing transition towards sustainability should place more emphasis on consumers as well, because, in developed countries, consumption directly or indirectly drives much of the environmental stress, waste, degradation, and resource exhaustion being produced by the goods and services demanded. Being green and behaving in an environmentally friendly way is thus, today,

more a necessity than a lifestyle, as people have become increasingly aware that the planet's conventional energy resources are finite.⁵ As global population continues to grow and technological advances make consumption easier and more convenient, our depletion of the planet's resources and release of greenhouse gases puts an increasingly significant strain on the planet. The observed relationship between consumption and greenhouse gas emissions makes it clear that we must change how we consume resources if we are to transition to a more sustainable society.⁶ Environmental degradations, climate change, biodiversity loss, and increasing waste generation have become major global concerns that require active participation from individuals and communities. Adults play a vital role in adopting eco-friendly practices such as waste segregation, water conservation, energy conservation, and biodiversity protection, as their daily lifestyle choices directly influence environmental sustainability.

Cheranalloor Gram Panchayat in Ernakulam district lies within a region experiencing increasing environmental stress, making a study of eco-friendly practices among its rural population particularly important. The principal chemical industries of Kerala state (~ 70%) are located near Cochin City at the Chitrapuzha River and the Periyar River banks (at Eloor). The booming city of Cochin has a high population density and is one of the 17 major industrial cities of India. There are approximately 250 industries situated at the Periyar River banks and the industrial facilities take large amounts of water from the Periyar River and, in turn, discharge concentrated toxic effluents after little treatment.⁷ Microplastic pollution in Kerala's coastal waters has raised human health concerns as well as environmental consequences. Singh et al. investigated the increase of microplastics from commercially important fish in Kerala, indicating the potential for human exposure to microplastics through seafood consumption. Also, highlighted the importance of

collaboration in addressing socio-ecological aspects of microplastic pollution and developing effective management strategies for coastal areas of Kerala. Many studies reveal the presence and prevalence of microplastics in marine habitats around the world.⁸ A focused examination of how rural residents in Cheranalloor adopt, or fail to adopt, eco-friendly behaviours is therefore crucial for understanding and addressing local environmental vulnerabilities.

On the academic and policy fronts, there exists a gap in localised, panchayat-level research on sustainable practices. There are broader studies on environmental awareness and green entrepreneurship in Kerala. Fewer studies explore grassroots-level practices like water and energy conservation, waste segregation and biodiversity protection in small rural communities. By assessing the current eco-friendly practices in Cheranalloor, the present study provides granular empirical evidence to inform local self-governance: panchayat leaders, community organizations, and grassroots activists to use these insights to design interventions that resonate with the lived realities of rural residents. Furthermore, the research aligns with broader state and national sustainability goals (e.g., reduction of plastic pollution, improving water quality) and can serve as a baseline for future comparative or longitudinal studies. This study seeks to assess the extent to which eco-friendly practices have been adopted among people living in rural areas. The findings will contribute to formulating effective strategies and policies for promoting sustainable rural development.

MATERIALS & METHODS

This cross-sectional study was conducted among 200 adults in Ward 15 of Cheranalloor Grama Panchayath,

Ernakulam, Kerala. The samples were selected using a non-probability convenience sampling technique. The samples included adults from the selected rural area of Ernakulam district who met the predefined criteria, while adults who were not permanent residents of Cheranalloor and having cognitive, hearing or communication impairments were excluded. Obtained approval from Cheranalloor Panchayat. Participant information sheets were given prior to the data collection and informed consent from participants were obtained. A self-structured questionnaire was used to gather data from 200 adults from ward 15 of Cheranalloor Grama Panchayath. The tool used for data collection included a structured questionnaire on eco-friendly practices comprising Section A (Socio-demographic Profile) and Section B (Likert Scale on eco-friendly practices).

Statistical Analysis

Data analysis was done by transforming the data into MS EXCEL worksheet and SPSS was used to extract meaningful outcomes and subject them to draw percentages, means and deviations. Chi-square test was used to find an association between the research variable and demographic variables. All the null hypotheses were tested at 0.05 level of significance.

Null Hypothesis

H₀₁: There is no significant association between eco-friendly practices and selected socio-demographic variables of adults.

RESULT

The study was conducted among 200 adults of ward 15, Cheranalloor, Ernakulam. The following tables and figures show frequency and percentage distribution of demographic variables of adults.

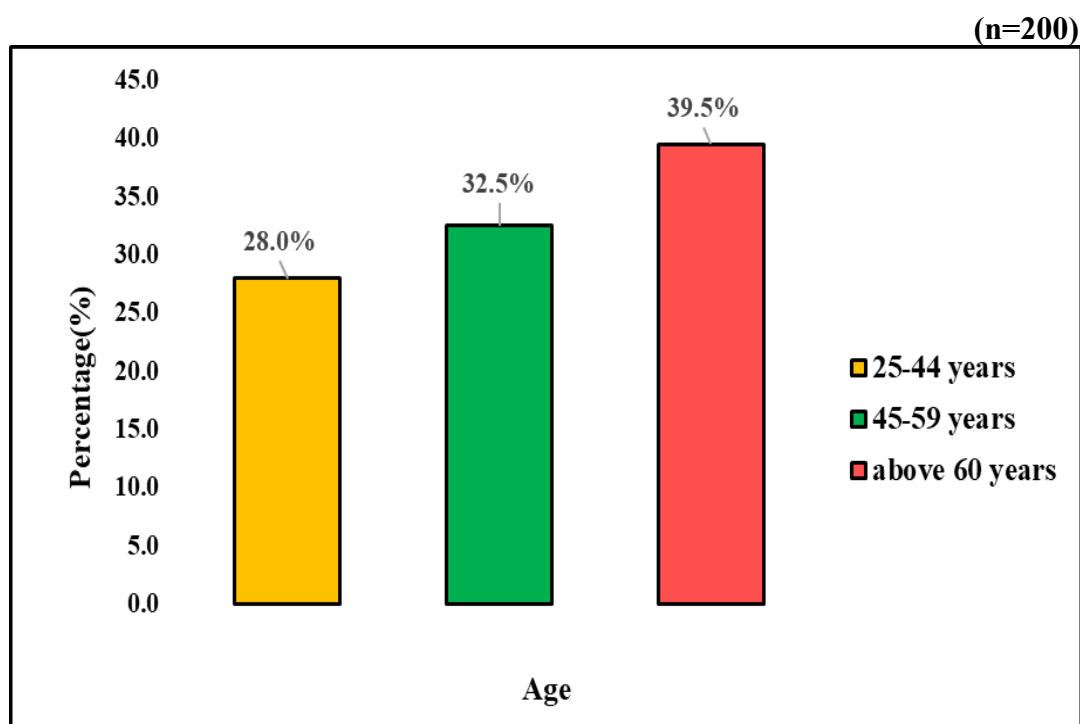


Figure 1: Distribution of sample based on age

Figure 1 explains the frequency percentage distribution of sample based on age. Among the 200 participants, 28.0% were aged 25–44 years, 32.5% were 45–59 years, and the largest proportion (39.5%) were above 60 years of age.

Table 1: Frequency and percentage distribution of family type, gender, education, occupation and financial status. (n=200)

Variables	Category	Frequency (f)	Percentage (%)
Family type	Nuclear family	147	73.5
	Joint Family	53	26.5
Gender	Male	73	36.5
	Female	127	63.5
Education	High school & below	96	48
	Higher secondary	30	15
	Diploma	38	19
	Graduation & above	36	18
Occupation	Homemaker	96	48
	Private	51	25.5
	Government	8	4
	Self - employment	45	22.5
Financial status	APL	76	38
	BPL	124	62

Table 1 explains that, among the 200 sample, 73.5% belonged to nuclear families, while 26.5% were from joint families. While considering the gender, 36.5% were males and 63.5% were females. Regarding educational status, 48.0% participants had completed high school or below, 15.0% had higher secondary education, 19.0% held a diploma, and 18.0% had graduation or

higher qualifications. With respect to occupation, 48.0% participants were homemakers, 25.5% were employed in the private sector, 22.5% were self-employed, and 4.0% worked in government jobs. Regarding financial category, 62.0% participants belonged to the BPL category, while 38.0% were from the APL category.

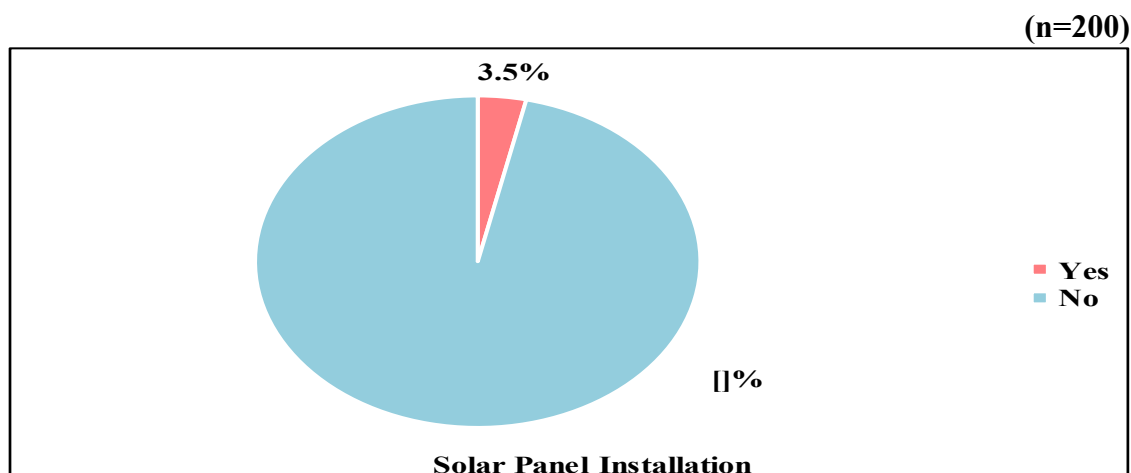


Figure 2: Distribution of sample based on solar panel installation.

Figure 2 explains the frequency percentage distribution of sample based presence of solar panel installation. Only 3.5% participants reported having solar panels, while the majority, 96.5%, did not have solar panels.

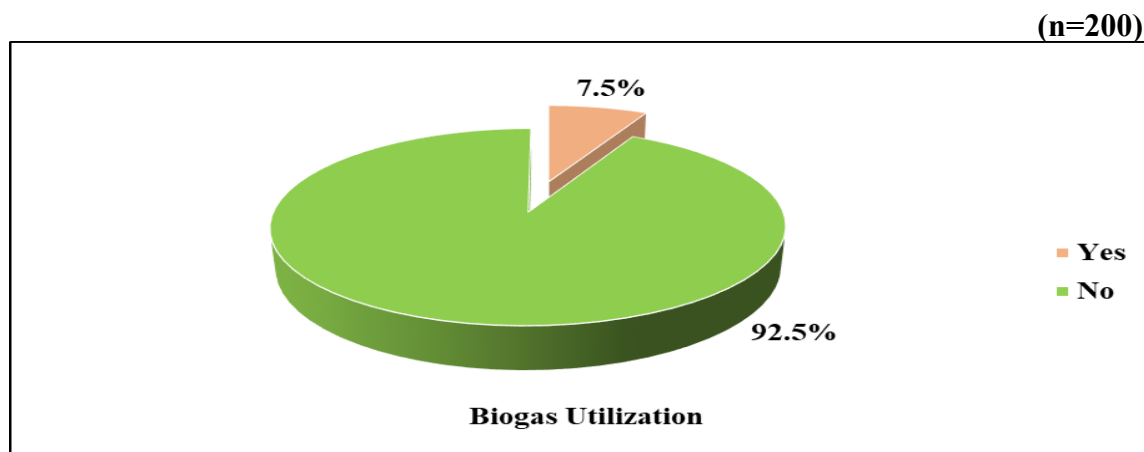


Figure 3: Distribution of sample based on biogas utilization.

Figure 3 explains the frequency percentage distribution of sample based on biogas utilization. Only 7.5% participants reported having a biogas facility, while 92.5% did not have biogas.

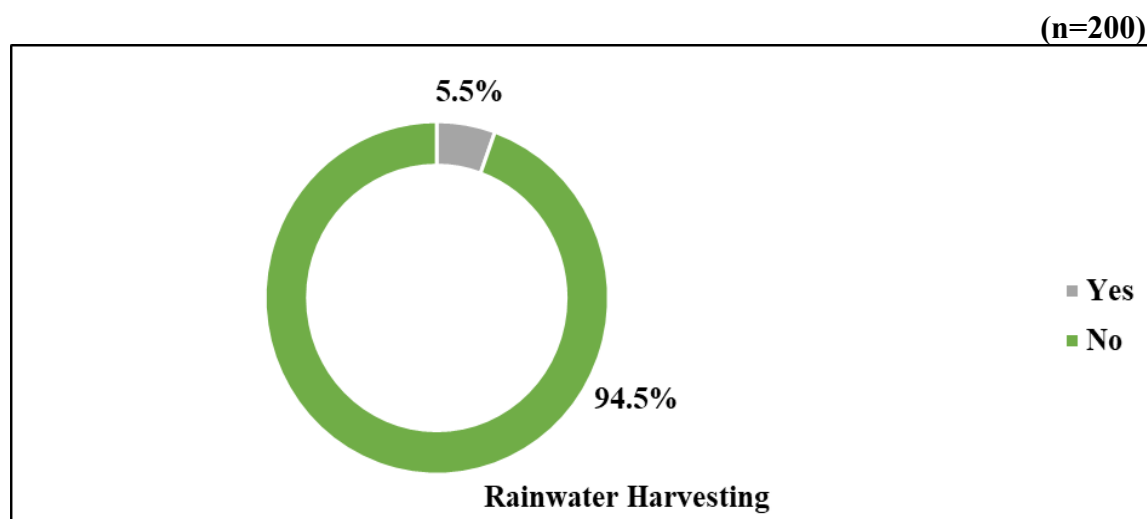


Figure 4: Distribution of sample based on adoption of rainwater harvesting systems.

Figure 4 explains the frequency percentage distribution of sample based on adoption of rainwater harvesting systems. With respect to rainwater harvesting, only 5.5% participants reported adopting it, whereas

94.5% did not have rainwater harvesting system.

Objective 1: To assess the eco-friendly practices among adults in selected rural areas.

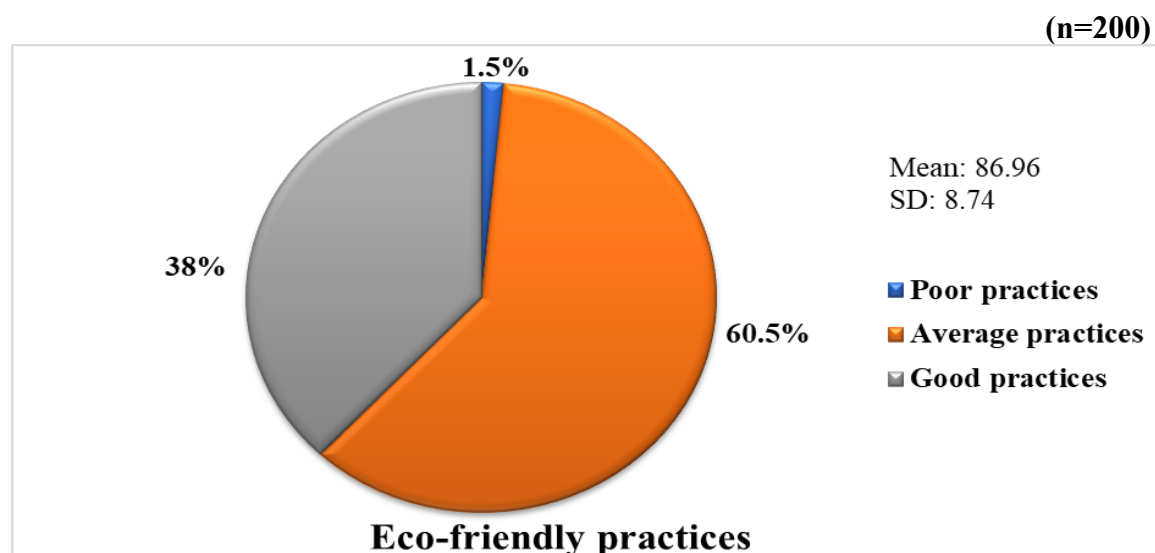


Figure 5: Distribution of sample based on eco-friendly practices.

Figure 5 illustrates the frequency percentage distribution of the sample based on the level of eco-friendly practices. Based on the eco-friendly practice scores, the majority of participants (60.5%) demonstrated moderate eco-friendly practices, 38.0% exhibited good practices, while only 1.5% demonstrated poor practices. The overall mean and standard deviation score of eco-friendly practices was 86.96 ± 8.74 .

Table 2: Domain-wise mean and standard deviation of eco-friendly practices. (n=200)

Domain	Mean (M)	SD
Waste management	25.99	2.62
Energy conservation	23.38	2.67
Water conservation	19.78	2.72
Biodiversity protection	17.83	4.03

Table 2 explains the mean and standard deviation score of eco-friendly practices of adults. The waste management had the highest mean score (25.99 ± 2.62) among participants, followed by energy conservation (23.38 ± 2.67) and water conservation (19.78 ± 2.72), while biodiversity protection showed the lowest mean score (17.83 ± 4.03), indicating comparatively poorer practices in this area.

Objective 2: To find the association between eco-friendly practices and selected socio-demographic variables of adults.

Table 3: Association of eco-friendly practices with socio-demographic variables of adults. (n=200)

Variables	Category	Eco-friendly practices			Chi-square value	p Value
		Poor practices	Moderate practices	Good practices		
Age (years)	25-44	1	30	25	7.98	0.09
	45-59	0	48	17		
	Above 60	2	43	34		
Family	Nuclear family	2	87	58	0.54	0.76
	Joint family	1	34	18		

Gender	Male	3	39	31	6.77	0.03*
	Female	0	82	45		
Education	High school & below	2	64	30	6.71	0.34
	Higher secondary	0	17	13		
	Diploma	1	23	14		
	Graduation & above	0	17	19		
Occupation	Home maker	0	58	38	6.88	0.33
	Private	1	35	15		
	Government	0	4	4		
	Self-employment	2	24	19		
Financial category	APL	1	43	32	0.88	0.64
	BPL	2	78	44		
Solar panel	Yes	0	3	4	1.18	0.55
	No	3	118	72		
Biogas	Yes	0	11	4	1.23	0.54
	No	3	110	72		
Rainwater harvesting	Yes	0	4	7	3.30	0.19
	No	3	117	69		

* significant at 0.05 level

Table 3 demonstrates association of eco-friendly practices and selected socio-demographic variables of adults. The chi-square analysis revealed a statistically significant association between gender and eco-friendly practice ($\chi^2 = 6.77$, $df = 2$, $p = 0.034$). This indicates that eco-friendly practices differed significantly between male and female participants.

DISCUSSION

The findings of the present study were discussed in relation to observations from previously reviewed research studies. The results were comparable with a study conducted by Keerthi and Kalra (2026) on eco-friendly behaviour among Indian young adults, who reported a mean eco-friendly behaviour score of 94.88 ± 20.54 among young adults, suggesting generally favourable eco-friendly behaviour.² This finding supports the present study by suggesting that environmental awareness may contribute to the predominantly average-to-good eco-friendly practices observed among the participants.

The present findings are partially consistent with the study conducted by Chauhan KT, Kumar V. (2026) on Indian students'

awareness of environmental sustainability, which assessed eco-friendly behaviour across four domains. The authors reported the highest mean score for energy conservation (4.01 ± 0.58), followed by water conservation (3.88 ± 0.61), waste management (3.71 ± 0.70), and the lowest score for biodiversity protection (3.54 ± 0.72). Although the ranking of waste management and energy conservation differed between the two studies, both studies consistently identified biodiversity protection as the lowest-performing domain, indicating that biodiversity conservation behaviours remain less frequently practiced than other environmentally sustainable behaviours.⁹

Additionally, the findings of the present study are consistent with those of Hanic A, Minovic J, Stevanovic S, and Mitic P. (2024), who investigated environmental attitudes among Serbian university students. The authors reported that gender was a significant predictor of environmentally friendly behaviour ($\chi^2 = 20.651$, $p < 0.001$), with female students being significantly more likely to engage in environmentally responsible behaviours than male students ($p = 0.009$). These findings suggest that

gender is an important factor influencing eco-friendly practices, possibly due to differences in environmental attitudes, social roles, and environmental awareness.¹⁰ Similarly, the present study demonstrated a statistically significant association between gender and eco-friendly practices, further emphasizing the influence of demographic variables on environmental behaviour.

Recommendations

Based on the present study, the following recommendations have been made for future study:

- Behaviour focussed educational interventions can be done to sustain and improve existing waste management and energy conservation practices.
- Community-based environmental education programs focusing on strengthening water conservation and biodiversity protection can be conducted.
- Qualitative studies can be conducted to analyse the factors contributing to poor eco-friendly practices.
- Intervention based and multicentric studies can be conducted to improve and validate eco-friendly practices across different populations.
- Research can be conducted to assess the impact of government policies and community-based interventions on eco-friendly practices.

CONCLUSION

The study assessed eco-friendly practices among adults in selected rural areas of Ernakulam. The majority of participants demonstrated moderate levels of eco-friendly practices, while a considerable proportion exhibited good practices, and only a small percentage showed poor practices. Among the various domains, waste management was the most commonly practiced, whereas biodiversity protection was comparatively less practiced. A significant association was found between gender and eco-friendly practices. These findings emphasize the need for targeted

awareness programs and community-based interventions to promote sustainable behaviours, particularly in the domains that are less practiced.

Declaration by Authors

Ethical Approval: None. Obtained Permission from Secretary, Cheranalloor Gramapanchayat, Ernakulam, Kerala

Acknowledgement: None

Source of Funding: None

Conflict of Interest: The authors declare no conflict of interest.

REFERENCES

1. Zhang W, Liang S, Wu W, Zhuang H, He Q. Willingness to perform environmentally friendly practices in rural areas: evidence from environmental regulation in agriculture. *Frontiers in Environmental Science*. 2025; 13:1502291. doi:10.3389/fenvs.2025.1502291.
2. Keerthi C, Kalra H. Eco-friendly behaviour among Indian young adults: the role of environmental awareness and demographic differences. *Int J Soc Impact*. 2026;11(2):348-357. doi:10.25215/2455/1102033.
3. Polisetty A, Chakraborty D, Singu HB, Behl A. Examining the relationship between pro-environmental consumption behaviour and hedonic and eudaimonic motivation. *J Environ Manage*. 2024; 359:121095. doi: 10.1016/j.jenvman.2024.121095.
4. Kumar SV, Salem M, Wagner R, Ozçaglar-Toulouse N. Online, offline, and beyond: social influences on household waste and sustainable consumption. *Sustain Futures*. 2025; 10:101193. doi: 10.1016/j.sftr.2025.101193.
5. Hojnik J, Ruzzier M, Konecnik Ruzzier M. Transition towards sustainability: adoption of eco-products among consumers. *Sustainability*. 2019;11(16):4308. doi:10.3390/su11164308.
6. Guckian M, De Young R, Harbo S. Beyond green consumerism: uncovering the motivations of green citizenship. *Mich J Sustain*. 2017;5(1). doi:10.3998/mjs.12333712.0005.105.
7. Dsikowitzky L, Nordhaus I, Sujatha CH, Akhil PS, Soman K, Schwarzbauer J. A combined chemical and biological

- assessment of industrial contamination in an estuarine system in Kerala, India. *Sci Total Environ.* 2014;485-486:348-62. doi: 10.1016/j.scitotenv.2014.03.034.
8. Pitchaimani S, Abishek R, Ravindran A, Joe RJ. Microplastic contamination in Kerala's coastal ecosystems: a review of sources, distribution, and ecological implications. *Discov Geosci.* 2025;3(1):25. doi:10.1007/s44288-025-00133-6.
 9. Chauhan KT, Kumar V. Indian students' awareness of environmental sustainability. *Int J Res Trends Soc Sci Humanit.* 2026;4(1):1-15. Available from: [https://ijrtssh.com/wp-](https://ijrtssh.com/wp-content/uploads/ijrtssh.vol_4.issue1_153.pdf)
 10. Hanic A, Minovic J, Stevanovic S, Mitic P. Environmental attitudes among Serbian university students. *Stanovnistvo.* 2024;62(2):321-341. doi:10.59954/stnv.650.

How to cite this article: Silji Sebastian, Fincy Joseph K, Deepamol K S. Eco-friendly practices among adults in Cheranalloor grama panchayat, Ernakulam: a descriptive survey. *Gal Int J Health Sci Res.* 2026; 11(3): 304-312. DOI: <https://doi.org/10.52403/gijhsr.20260333>
