

Knowledge Opinion and Practices of Indigenous leafy Vegetables among Rural Women of Varanasi District U.P India

Roshani Singh¹, Mukta Singh²

¹Research Scholar, Department of Home Science, (Food and Nutrition) MMV, Banaras Hindu University, Varanasi 221005 Utter Pradesh, India

²Professor, Department of Home Science, (Food and Nutrition) MMV, Banaras Hindu University, Varanasi 221005 Utter Pradesh, India

Corresponding author (E- mail address: drmuktasingh@gmail.com)

ABSTRACT

Indigenous leafy vegetables play a significant role in sustaining the nutritional needs of rural communities in developing countries. A cross-sectional study was conducted in the Varanasi district assessed the knowledge, opinions, and practices regarding indigenous green leafy vegetables among rural women. Samples were selected randomly and the total sample size was 399 subjects. The findings revealed that Poigreen and Flax flower were more recognized among ages 60 and above and 41-60 ($X^2 = 36.167$, $p = .000$; $X^2 = 16.566$, $p = .000$), while Lolligreen, Marsagreen, and Nonigreen presented higher awareness among ages 60 above, 41-60, and 18-40 ($X^2 = 45.813$, $p = .000$; $X^2 = 12.973$, $p = .002$; $X^2 = 6.197$, $p = .045$), respectively. Opinion of the health benefits of green leafy vegetables varies significantly across age groups ($X^2 = 12.274$, $df = 2$, $p = .002$). This indicates that older individuals were more likely to recognize the health benefits of green leafy vegetables compared to younger generation. The data indicated a significant variation in the consumption of green leafy vegetables across age groups ($X^2 = 22.967$, $df = 2$, $p = .000$). Individuals aged 60 and above exhibit the highest consumption rate of about 71.2 %, followed by 41-60 age group 50.3 % and the 18-40 age group 36.7 %, suggesting that older respondents were more inclined to consume green leafy vegetables compared to younger respondents.

Key words: Indigenous leafy vegetables, Sustaining, Awareness, consumption.

INTRODUCTION

In rural areas, food insecurity and malnutrition pose significant challenges. However, establishing systems that support sustainable cultivation, distribution, and consumption of indigenous green leafy vegetables (ILVs) can help reduce these challenges throughout the year (Bvenura & Afolayan, 2015). ILVs, also known as "traditional leafy vegetables," refer to a group of leafy vegetable species that are used in specific indigenous ethnic groups' foods (Motsa et al., 2015). These native leafy vegetables grow naturally in open lands, backyards, and neglected land, and belong to the category of native species or species that were formerly imported and have since developed naturally (Gupta, 2017; Maseko, 2018). In rural developing nations, native leafy greens are crucial for increasing nutritional diversity and enhancing family food security. (Mbhenyane, 2017, Mavengahama, 2022). According to several studies, local leafy greens provide affordable, nutrient-dense dietary alternatives that can efficiently fill up nutritional gaps (Maseko, 2018, Mbhenyane, X.2017, Ranum et, al. 2014). Due to their abundant amount of essential nutrients (Meldrum, et, al. 2018, Bua et, al. 2017), Leafy vegetables contribute significantly to people's daily diets by providing adequate amounts of protein, minerals, vitamins, fiber, and other essential nutrients that are often lacking. (Mohammed and Sharif, 2011; Omara-Achong et al., 2012). In addition, native leafy vegetables are rich in bioactive components such as phenolic compounds, flavonoids, dietary fiber, carotene, and vitamin C, all of which provide various health benefits to individuals and may be used to raise the diversity and quality of diets, which will help everyone involved in the food system achieve healthy, sustainable diets. Numerous studies have demonstrated that consuming a sufficient amount of vegetables on a regular basis can decrease the risk of chronic ailments,

such as diabetes, cancer, and metabolic disorders such as obesity and heart disease, in both adults and children (Ramos et al., 2013). Furthermore, vegetables can be utilized to enhance the diversity and quality of food, enabling individuals in the food system to achieve sustainable and nutritious diets (Johns et al., 2003). ILV is mostly grown by small farmers in rural regions and provides a significant amount of food for poor households. Despite its high nutritional content, few individuals are aware of the advantages of eating more leafy green vegetables for their health (Mabhaudhi et al. 2016). Keeping these factors in mind, the study focuses on understanding the knowledge, opinions, and practices related to indigenous green leafy vegetables.

METHODOLOGY

The present study was conducted in four block of Varanasi district Chiraigaon, Kashividyaapeeth, Sevapuri, Harahua. Study was approved by the Institutional Ethics Committee of Banaras Hindu University and Verbal and written consent was obtained from the participants. A cross-sectional survey was conducted and both closed ended and open-ended Schedule was used to collect data. Total sample size was 399. Age of the respondents were decided on the basis of three generation i.e generation one (18 to 40 years) generation two (41 to 60 years) and generation three (Above 60 years). Sample size of all three generation has been determined according to their proportion in the total population. Multistage Random sampling was used for Sample selection. The respondents were interviewed face to face. The data was tabulated and analyzed by Statistical Package for social science (SPSS version 26.0).

RESULT AND DISCUSSION

Table 1. Demographic characteristics of the respondents.

Variables	Category	Number	Percentage
Age	18-40	120	30.1
	41-60	199	49.9
	60<	80	20.1
	Total	399	100.0
Educational Status.	Illiterate	157	39.3
	Primary	24	6.0
	Middle	55	13.8
	High school	40	10.0
	Intermediate	75	18.8
	Graduation+Post graduation	48	12.0
	Total	399	100.0
Family type	Nuclear	214	53.6
	Joint	185	46.4
	Total	399	100.0
Dietary preference	Vegetarian	272	68.2
	Non vegetarian	127	31.8
	Total	399	100.0
Total land area	<1 Bigha	36	9.0
	1-2 Bigha	192	48.1
	2-4 Bigha	104	26.1
	> 4 Bigha	67	16.8
	Total	399	100.0

*Field study **(Modified BG Prasad scale 2021)

Table 1. revealed the age distribution of total respondents in the study. Majority of the respondents approximately 49.9 % were from the middle age group about 30.1 % from the young age group and only 20.1% from the old age group. In terms of education most of the respondents were illiterate approximately 39.3 % and 18.8 % were educated up to intermediate, 13.8 % were from middle level, 12.0 % were (undergraduate and postgraduate). Nearly 10 % of the respondents were from high school and the remaining respondents were less than matriculation. In matter of family type Most of the respondents approximately 53.6 % were from nuclear families and 46.4 % were living in joint families. In the matter of dietary preferences majority 68.2 % were vegetarian and 31.8% were belonging to non vegetarian. About 48.1 % of respondents owned 1-2 Bigha of land, showing that medium-sized farms are popular. Of those who owned 2-4 Bigha, 26.1 % owned less than 1 Bigha, while 16.8 % owned more than 4 Bigha. This implies that land ownership has an impact, either direct or indirect, on the production of particular foods.

Table 2. Distribution of respondents based on knowledge regarding locally available green vegetables.

Variables	Age of the respondents			X ²	P-value
	18-40 (N=120)	41-60 (N=199)	60 Above (N=80)		
	No. (%)	No. (%)	No. (%)		
Spinach	120 (100.0)	199 (100.0)	80 (100.0)	-	-
Fenugreek	120 (100.0)	199 (100.0)	80 (100.0)	-	-
Amaranth green	120 (100.0)	199 (100.0)	80 (100.0)	-	-
Dill Leaves	120 (100.0)	199 (100.0)	80 (100.0)	-	-
White goose foot	120 (100.0)	199 (100.0)	80 (100.0)	-	-
Green gram	118 (98.3)	199 (100.0)	80 (100.0)	-	-
Mustard green	120(100.0)	199 (100.0)	80 (100.0)	-	-
Poi green	83 (69.2)	131 (65.8)	80 (100.0)	36.167	.000
Flax flower	113 (94.2)	199 (100.0)	80 (100.0)	16.566	.000
Amaranth red	51 (42.5)	123 (61.8)	72 (90.0)	45.813	.000
Marsa green	52 (43.3)	127 (63.8)	47 (58.8)	12.973	.002
Karemu green	74 (61.7)	133 (66.8)	49 (61.2)	1.238	.539
Noni green	62 (51.7)	122 (61.3)	37(46.2)	6.197	.045
Colocasia leaves	79 (65.8)	164 (82.4)	80 (100.0)	36.888	.000
August flower	87 (72.5)	153 (76.9)	61 (76.2)	.812	.666
Drumstick leaves	87 (72.5)	183 (92.0)	80 (100)	1.708	.426

Source: Field study

Table 2. Notably, several vegetables exhibit significant variations in awareness across age groups. For instance, Poigreen showed a significant difference ($X^2 = 36.167$, $p = .000$), with the highest awareness among respondents aged 60 and above. Flax flower also showed a significant variation ($X^2 = 16.566$, $p = .000$), with greater awareness among respondents aged 41-60. Conversely, Amaranth red, Marsa green, and Noni green showed significant differences ($X^2 = 45.813$, $p=.000$; $X^2 = 12.973$, $p = .002$; $X^2 = 6.197$, $p = .045$) indicating higher awareness among respondents aged 60 above, 41-60, and 18-40, respectively. However certain indigenous green leafy vegetables may be more well-known to older generations since they grew up with more exposure to local food and traditional cooking methods. It might also be related to dietary habits, regional availability, and cultural preferences. Similar study have done by Keding et al., (2007) to identify the relevance of traditional vegetables in production and consumption in Tanzania in four distinct agro-ecological zones of Tanzania found that older women seem to be more aware of the health benefits and diversity of AILVs (African Indigenous Leafy Vegetables) than the younger ones.

Table 3. Distribution of respondents on the basis of Opinion regarding health benefits to consuming of green leafy vegetables in their daily diet.

Characteristics	Age of the respondents						Total	
	18-40 (N=120)		41-60 (N=199)		60 Above (N=80)			
	No.	%	No.	%	No.	%	No.	%
Yes	62	51.7	123	61.8	61	76.2	246	61.7
Have not idea	58	48.3	76	38.2	19	23.8	153	38.3
Total	120	100.0	199	100.0	80	100.0	399	100

$X^2 = 12.274$, $df = 2$, $P = .002$

Source: Field study

Notably, in the 18-40 age groups, 51.7 % respondents had positive opinion (*i.e* It is rich in vitamin and antioxidant, improve eyesight, keep digestion healthy) about health benefits of green leafy vegetables, while 48.3 % had no idea. In middle age groups, 61.8 % had positive opinion while 38.2 % had no idea. In old age groups about 76.2 % expressed positive opinions, while 23.8 % had no idea. The chi-square test results ($X^2=12.274$, $df=2$, $P=.002$) suggest that opinions about the health benefits of green leafy vegetables vary significantly based on age groups. This finding highlights the importance of age-related differences in shaping people's opinions towards incorporating green leafy vegetables into their daily diets. Keding et al., (2007) found that older women believed that food cooked longer retains more nutrients than food cooked quickly, but the impact of cooking time on nutrient retention varies depending on the cooking method and type of food.

Table 4. Classification of respondents on the basis of consuming green leafy vegetables.

Characteristics	Age of the respondents						Total	
	18-40 (N=120)		41-60 (N=199)		60 Above (N=80)			
	No.	%	No.	%	No.	%	No.	%
Yes	44	36.7	100	50.3	57	71.2	201	50.4
Very Few	76	63.3	99	49.7	23	28.8	198	49.6
Total	120	100.0	199	100.0	80	100.0	399	100

$X^2 = 22.967$, $df = 2$, $P = .000$

Source: Field study

Consumption of green leafy vegetables varied significantly across different age groups, as shown by chi-square test results ($X^2=22.967$, $df=2$, $P=.000$). In the 18–40 age groups, 36.7% consumed green leafy vegetables daily, while 63.3% very little. This low consumption rate may be due to lifestyle factors such as busy schedules. In the middle-aged group, consumption increased to 50.3%, with 49.7% consuming very little, suggesting greater awareness or interest in healthy eating but still facing other influencing factors. In older age groups, consumption increased significantly to 71.2%, with only 28.8% consuming very little. This may be due to cultural traditions, regional food influences, or a preference for convenience foods in the younger generation.

CONCLUSION

It was observed that different Indigenous leafy vegetables (ILVs) are recognized and consumed to varying degrees across age groups. Older individuals show higher awareness and consumption rates of these vegetables compared to younger generations. These findings indicate the importance of promoting ILVs to ensure the continuity of traditional knowledge and practices surrounding these valuable food resources.

ACKNOWLEDGEMENT

The author is deeply grateful to the individuals from Varanasi district for their invaluable contribution. Their sharing of traditional knowledge and wisdom about indigenous food has greatly enriched this manuscript.

REFERENCES

- [1]. Motsa, M.M., Slabbert, M.M., van Averbeke, W. & Morey, L., 2015. Effect of Light and Temperature on Seed Germination of Selected African Leafy Vegetables. *South African Journal of Botany*, 99, 29-35.
- [2]. Gupta, S.; Srivastava, A.; Lal, E.P. Indigenous leafy vegetables for food and nutritional security in two districts of Jharkhand, India. *J. Pharmacogn. Phytochem.* 2017, 6, 901–909.
- [3]. Mavengahama, S. Wild Vegetables Contribute to Food Security. *Green Times—References for Life*. 2014. Available online: <http://thegreentimes.co.za/wild-vegetables-contribute-to-food-security> (accessed on 12 August 2022). 4. Mbhenyane, X.G.
- [4]. Indigenous foods and their contribution to nutrient requirements. *S. Afr. J. Clin. Nutr.* 2017, 30, 5–7.
- [5]. Ramos, B., Miller, F.A., Brandão, T.R.S., Teixeira, P. & Silva, C.L.M., 2013. Fresh Fruit and Vegetables - An Overview on Applied Methodologies to Improve its Quality and Safety. *Innovative Food Science and Emerging Technologies*, 20, 1-15.
- [6]. Gupta, S.; Srivastava, A.; Lal, E.P. Indigenous leafy vegetables for food and nutritional security in two districts of Jharkhand, India. *J. Pharmacogn. Phytochem.* 2017, 6, 901–909.
- [7]. Maseko, I.; Mabhaudhi, T.; Tesfay, S.; Araya, H.T.; Fezzehazion, M.; Plooy, C.P.D. African leafy vegetables: A review of status, production and utilization in South Africa. *Sustainability* 2018, 10, 16. [CrossRef]
- [8]. Mavengahama, S. Wild Vegetables Contribute to Food Security. *Green Times—References for Life*. 2014. Available online: <http://thegreentimes.co.za/wild-vegetables-contribute-to-food-security> (accessed on 12 August 2022).
- [9]. Mbhenyane, X.G. Indigenous foods and their contribution to nutrient requirements. *S. Afr. J. Clin. Nutr.* 2017, 30, 5–7.
- [10]. Maseko, I.; Mabhaudhi, T.; Tesfay, S.; Araya, H.T.; Fezzehazion, M.; Plooy, C.P.D. African leafy vegetables: A review of status, production and utilization in South Africa. *Sustainability* 2018, 10, 16. [CrossRef]
- [11]. Ranum, P.; Peña-Rosas, J.P.; Garcia-Casal, M.N. Global maize production, utilization, and consumption. *Ann. N. Y. Acad. Sci.* 2014, 1312, 105–112. [CrossRef] [PubMed]
- [12]. Meldrum, G.; Padulosi, S.; Lochetti, G.; Robitaille, R.; Diulgheroff, S. Issues and prospects for the sustainable use and conservation of cultivated vegetable diversity for more nutrition-sensitive agriculture. *Agriculture* 2018, 8, 112. [CrossRef]
- [13]. Bua, B.; Onang, C. Validating the role of African indigenous vegetables for food and nutrition security in Uganda. *J. Food Sci. Eng.* 2017, 7, 316–322.
- [14]. Mabhaudhi T, O'Reilly P, Walker S, Mwale S. Opportunities for underutilised crops in southern Africa's post-2015 development agenda. *Sustainability*. 2016;8(4):3
- [15]. Johns T. Plant biodiversity and malnutrition: simple solutions to complex problems. *AJFAND*. 2003;3(1):45–52.