

KAP STUDY ON NUTRITIONAL ATTRIBUTES OF INDIGENOUS VEGETABLES AND ITS CONSUMPTION PATTERN AMONG LATE ADOLESCENT (18-25) OF PAPUMPARE DISTRICT

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ABSTRACT

The state Arunachal Pradesh is considered one of biodiversity hotspot areas in India. Various tribes in Arunachal Pradesh have been utilizing Indigenous vegetables which are important for their tradition, economical stability, nutrition and health, and social structure. A study was conducted with the objectives to find the knowledge, attitude and practices among the late adolescent (18-25) regarding nutritional attributes of Indigenous vegetables and its consumption pattern in Papumpare district. Questionnaire method was used with an appropriate statistical analysis for the data collection with 200 sample size. The study reveals that the area is inhabited by Nyishi tribe taking up 67%, Christianity with 69% being the most practiced religion. 86% of the subjects were allergic to egg. It was also found to have a positive correlation between the understanding of Indigenous vegetable and Attitude toward the vegetable intake, The knowledge to include vegetable daily and eating seasonal vegetable, The availability of local vegetables and self purchase of local vegetables and Commonly consumed vegetable and local vegetable consumption with the p-values of 0.02, 0.002, 0.001 and 0.001 respectively. It can be concluded that despite having a fair amount of knowledge regarding the indigenous vegetables, the adolescent tend to have limitation on the positive attitude and practices in their consumption pattern The present study further shows that there is an urgent need for adolescents to reconnect with their culture and prompting them to incorporate such vegetables in the diet which may enhance their health and well being.

Keywords: KAP, Indigenous Vegetables, Adolescents, North-East, Arunachal Pradesh, India.

INTRODUCTION

Northeast India is considered to have a wide range of cultural diversity and also particularly known for its major biodiversity centre set apart by difficult hilly areas and distinct ecosystems. The wild vegetables grow naturally in the wild and are resistant to various environmental stresses and superior in nutrition as compared to the common available vegetables and cultivated crops [1]. Based on the Indigenous knowledge the traditional kitchen gardens are practice with a broad diversity of native crops and traditional importance which in turn can be promising and ecologically practicable option for the community in farming [2] Arunachal Pradesh covers an area of 83,743 sq. km and area wise the largest state in Northeast India. Some of the common tribes are *Adi, Apatani, Aka, Galo, Mishmi, Monpa, Nocte, Nyishi, Tagin, Tangsa, Wancho*, etc. Each tribe is unique to their own rich indigenous knowledge about these wild plants. It is deduced that the tribes of Arunachal Pradesh on consuming wild vegetable served as rich source of vitamins, fats, proteins and others biologically essential micro-nutrients. The tribals of Arunachal Pradesh known to be healthy and strong without any intervene of contemporary medicine must be the reason for their food habits. It has come to be commercially important today especially observed in the town and city vegetable markets of Arunachal Pradesh [3]. These indigenous vegetables also found to uplift the scavenging free radicals produced in human body by being the richest source antioxidant by that means leading to fight against various diseases and sustaining a healthy body Despite their rich nutritional values very less work has been done in research, development of economy, conservation of biodiversity and sustainable management [4]. With an experience of a very long time, the tribal people have obtained the traditional knowledge, the use of the indigenous edible plants, which are constantly conveyed verbally from generation to generation. Nonetheless, due to the large no. of migration of population to the urban areas, the knowledge about these indigenous plants has been decreasing and in addition to it a fast decline in natural resources and a shift in cultural tradition [5]. Papumpare district is one of the 26 districts present in the Arunachal Pradesh and stands as the most populated district of the state. Like many other districts of Arunachal Pradesh, Papumpare also stands as an agrarian district. In Papumpare district the Nyishi tribe is one of the major tribe among all the other tribes. Food consumption pattern may differ from tribe or community basis living in rural and urban area [6]. The nutrition and growth of adolescents may adversely be affected by inadequate diet and environment condition. It is rather common in developing countries to coexist overweight/obesity and underweight and over time it is found to increase proportionally. India nonetheless is also rapidly starting to encounter the emerging in overweight issues. Compared to the younger children the adolescents

tend to eat more meals away from home and hence it can deeply effect the overall development of a child [7]. Due to economic advancement and urbanization there is an increased in nutritional transition, rise in the non-communicable disease which can be prevented, less physical activity which where normalizing sedentary lifestyle and are also causing the traditional diets to be replaced by energy-dense diets [8]. One of the main reasons for this alteration of lifestyle could be the change which is component of any society, could be the wide-ranging development seen in socio-economic order, food habits, institution, political activities, ornaments, dresses, customs and customary law etc. Social change and circumstance of social change has been initiated to define by various theorists. As being stated these change in social is also being seen today in every side of the Nyishi community [9].

Objective:

- To assess the knowledge regarding nutritive attributes of Indigenous vegetables among selected subject.
- To determine the attitude related to consumption of Indigenous vegetables among selected subject.
- To evaluate the practices adopted by Adolescents regarding consumption of Indigenous vegetables.

MATERIALS AND METHODS:

The study was conducted in Papumpare district of Arunachal Pradesh, with in total 200 subjects. Necessary data has been collected with the objective to find the knowledge, attitude and practice of the indigenous vegetables and its consumption pattern among late adolescent at the age between 18 to 25. Questionnaire method was used for the data collection. Most of the subjects were selected from the urban area of the district. Prior to participation, each subject were given a consent form on their involvement in the study. Questionnaire method was used in collecting the data of the participants which were the socio-demographic information, food habits and medication and knowledge, attitude and practice on indigenous vegetables and its consumption patterns. The data obtained have been processed and analyzed using chi square, more specifically pearson chi square for objective and logical interpretation. The quantitative techniques adopted for the analysis are simple percentages and statistical measures. The study area is drawn on the basis of the results derived from the data analysis and personal experience gathered through the observations during field study.

RESULTS AND DISCUSSION

Socio Demographic Information

It was found that among the total of 200 subjects, 95 were male and 104 were female and only one of them was reported to be non-binary. Provided age categories with 25% were under 18-20 age and 75% were 21-25 age. Educational level up to the highest data is the graduates with 47.5%, following with 26.5%, 21% and 5% in post-graduate, high school and other. It has been found that the Nyishi tribe with 67% were more prevalent in the district as compared to its counterparts, where Nocte, Sherpa, Pai Libho, Khamti and Pnar being the lowest tribe resulting 0.5% each. A total of 139 out of 200 have been observed to practice Christianity as a religion followed by Donyi polo with 45 subject, Buddhism & Hinduism with 6 subject, other religions with 5 subject, which supports the study conducted by Ramjuk et al. (2018) where it was revealed that as compared to other religion Christianity was most practiced among the Nyishi tribe in Arunachal Pradesh.

Food habits and medication representation

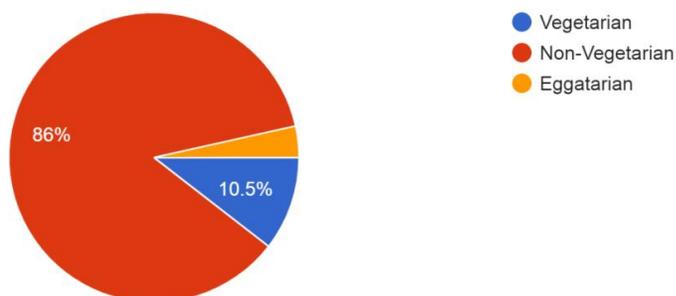


Fig 1 Food habits of selected subjects

Fig 1 shows 86% of subjects practice a food habit of non-vegetarian, while 10.5% & 3.5% shows to be vegetarian & eggatarian.

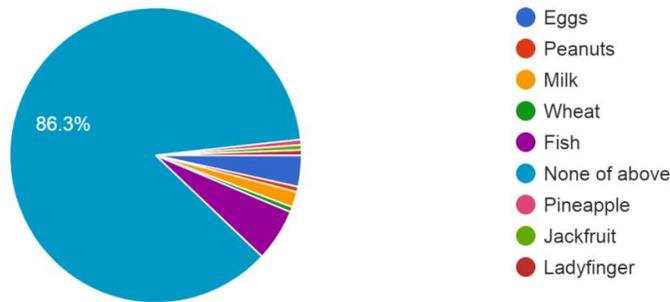


Fig 2 Sources of food allergy

In Fig 2 subjects reveal that 86.3% subjects were having food allergy to egg followed by fish, milk, peanuts, wheat and other [5.7%, 1.7%, 0.6%, 0.6 and 5.1%]. Egg being the highest food allergen among the subjects, which explains the reason why fewer subjects were Eggatarian in Fig 1.

Knowledge, Attitude and Practice regarding Indigenous vegetables and its consumption pattern among late adolescents in Papumpare district

Understanding on Indigenous vegetable:

It was revealed that with strength of 79%, the young adults of the selected subjects had the fair amount of knowledge of Indigenous vegetables through the questionnaire method. These subjects provided the accurate answer to the questions given on regard to the knowledge and awareness of their Indigenous vegetables. While the remaining of the 21% subjects were oblivious and had less to no concern over the same.

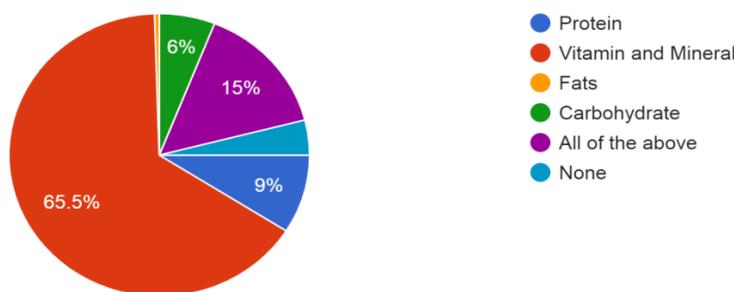


Fig 3 The most abundant nutrients present in green vegetables

Fig 3 shows 65.5% of the subjects were aware of the nutrients available in green vegetables, while rest of the subjects failing to do so. The least subjects i.e. fats with 0.5% was selected to be the nutrient found in green vegetables

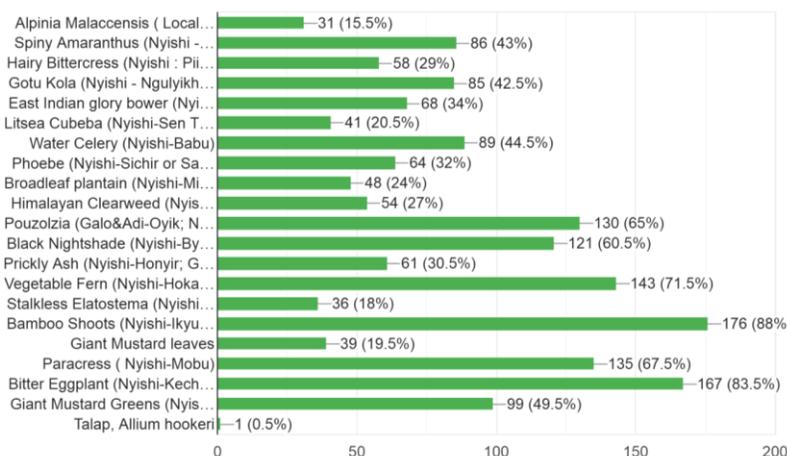


Fig 4 Commonly consumed local vegetables

Fig 4 represents bamboo shoots [176 subjects] being the most consumed local vegetable among the study subjects, followed by bitter eggplant [167 subjects] consumed the second most and with 143 subjects, vegetable fern remains the third most consumed local vegetables among the study subjects. A study by Nongdam and Tikendra (2014) also shows Bamboo shoot as the most commonly consumed vegetable in both the hilly and plain areas is mainly limited to only the Northeast states in India. Whereas some of the least consumed local vegetables were alpinia malaccensis [31 subjects], stalkless elatostema [36 subjects].

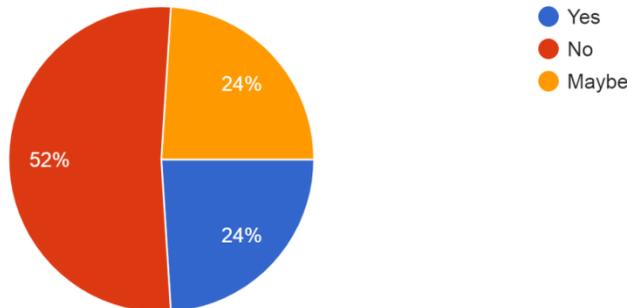


Fig 5 Junk food over local vegetables

Here in Fig 5, 52% of the subject selected local vegetables but still almost half of the subject preferred junk food and considering to do so. A study was conducted by Ramjuk et al. (2018) where it was found that the traditional food habits are still maintained by Nyishi tribe but the urban Nyishi populace are seen to accept the foreign food habits. Therefore this could be the reason for almost half of the subjects to select junk food over local vegetables. In addition, there is another study by Ozah et al. (2017) reveals that the nutritional health status of rural people was better as compared to urban people of the district.

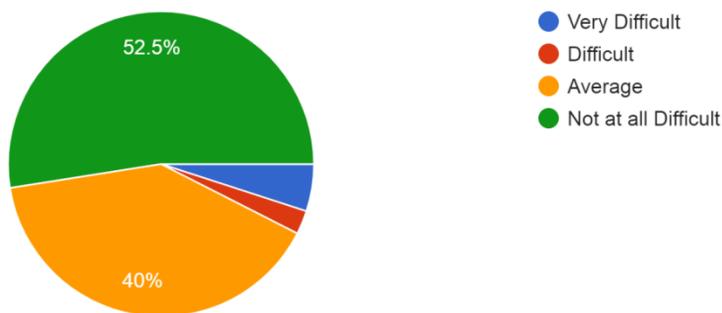


Fig 6 Availability of local vegetables

Fig 6 represents the level of availability of local vegetables on daily basis. On the total 200 subjects 105 find it not at all difficult to avail the local vegetables, 80 subjects have an average opinion on this matter, 10 subjects find it very difficult and 5 subject as difficult to avail the local vegetables. A study done by Muthu et al. (2018) states that in recent scenario, with an increased demand of wild indigenous vegetables, traditionally used vegetables have converted into a commercially important in the vegetable markets of Arunachal Pradesh, which makes it not at all difficult for the consumer to purchase.

Representation of association between different variables

Table: 1 Association between understanding of indigenous vegetable and attitude toward the vegetable intake

Understanding on indigenous vegetable	Attitude toward the vegetable intake					χ^2
	23	34	82	16	0	
	3	2	5	3	0	

	1	1	13	2	1	P value = 0.02
	3	6	4	1	0	

Table: 1 depicts 104 out of 200 respondents selected to consume vegetable twice and 155 respondents had the knowledge of indigenous vegetable along with a positive attitude toward consuming vegetable daily. With pearson chi-square the p-value is <0.05 i.e. 0.02, its shows a positive correlation between understanding on indigenous vegetables and attitude toward the vegetable intake.

Table: 2 Association between the knowledge to include vegetable daily and eating seasonal vegetable

Knowledge to include vegetables daily	Eating seasonal vegetable			χ^2
		29	0	
	40	1	2	
	95	9	0	
	14	5	3	
	1	0	0	

Table: 2 shows that the highest total of 179 subjects consumes seasonal vegetables and 104 take 3-4 serving of vegetables daily. With pearson chi-square the p-value is <0.05 i.e. 0.002, its shows a positive correlation between understanding on indigenous vegetables and attitude toward the vegetable intake.

Table: 3 Association between the availability and self purchase of local vegetables

The availability of local vegetables	Self purchase of local vegetables			χ^2
		7	3	
	2	3	1	
	73	4	3	
	93	8	3	

Table: 3 demonstrate that 175 subjects purchase the local vegetables by themselves with 104 subjects finding it not at all difficult to get the local vegetables in the market.

With pearson chi-square the p-value is <0.05 i.e. 0.001, its shows a positive correlation between understanding on indigenous vegetables and attitude toward the vegetable intake.

Table: 4 Association between commonly consumed vegetable and local vegetable consumption

Commonly consumed vegetables	Local vegetable consumption			χ^2
		101	7	
	8	1	0	
	67	6	1	
	3	1	2	

Table: 4 shows that the highest no. of subjects i.e. 179 out 200 consumes local vegetable and 111 subjects consume green leafy vegetables as common. With pearson chi-square the p-value is <0.05 i.e. 0.001, its shows a positive correlation between understanding on indigenous vegetables and attitude toward the vegetable intake.

CONCLUSION

It can be concluded that despite having a fair amount of knowledge regarding the Indigenous vegetables, the adolescent tend to have limitation on the positive attitude and practices in their consumption pattern. The present study further shows that there is an urgent need for adolescents to reconnect with their culture and prompting them to incorporate such vegetables in the diet which may enhance their health and well being. Adolescents need to be correctly educated about different Indigenous vegetables in the district and their benefits which will affect their Attitude and Practices. There is a vast source of evidence through numerous studies and age old observation that the Indigenous vegetables found in the state of Arunachal Pradesh has an important role to play in the overall health of the tribal people residing there. The proper knowledge about the Indigenous vegetables especially among the youth will aid in maintaining the tradition and culture of the state. It may also help them to know different available local vegetables in the state and in future perspective, it may prevent the extinction of the present available Indigenous vegetables. With an appropriate amount of knowledge and awareness of its importance, there will be a definite change in attitude of youth towards the consumption of the Indigenous vegetables and through this positive attitude it will be rather inevitable to have positive practice of including the vegetables on their daily diet. Furthermore, the younger generation of the state should be self aware of how significant it is to conserve ones identify as a tribal society. The youth should understand and make more effort in showing interest in their community.

ACKNOWLEDGEMENT

First and foremost, praises and thanks to the God, the Almighty, for his showers of blessings throughout my research work to complete the research successfully. I would like to extend my thanks to my family for always being there by all means, encouraging me to give my best and supporting me emotionally and financial. I would like to acknowledge and give my warmest thanks to my supervisor Dr. Gurjeet Kaur Chawla for giving the opportunity to work in this area. It would not have been possible to take this dissertation to this level without her innovative ideas and her relentless support and encouragement. A heartfelt appreciation and regards to Dr. Divya Sanghi, Head of the Department for giving me the opportunity to represent my very own first dissertation. I would also thank all the participants of my research study for their patience and cooperation.

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