Consumer contextual socialization and decision making on consumption of African leafy vegetables among university youth populations

[1]Mugalavai, Violet K. & [2]Omutimba, Harriet N.O.

[1]Department of Family and Consumer Sciences, School of Agriculture & Biotechnology, University of Eldoret, Kenya
[2]Department of Philosophy and Religious Studies, School of Humanities and Social Sciences, Pwani University, Kenya

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Abstract- As the urban population continues to grow globally, there is need for dietary diversification especially in vegetable consumption as people integrate from various contexts. This is an important social- nutrition aspect that enables urban communities to become acculturated into contextual food habits and may help to socially integrate and expand nutrition possibilities among them and market possibilities for informal workers in the urban ALV food supply chain. The objectives of this study was to determine consumers' predictors of ALV consumption and decision making among 315 undergraduate students from University of Eldoret, Kenya. A survey questionnaire was administered to derive some quantitative data which was analysed to get the differences in gender, place of origin and year of study in the adoption of ALVs. The findings revealed that adoption of the ALVs correlated positively with advancement in year of study and females were greater adopters since they had higher prior knowledge of ALVs, at $p<.05$. Food contextual socialization is therefore an important aspect in an institution and it enables learning of new food habits through observability and triability, by individuals originating from cross cultural borders. This can go a long way in making enhancing positive change in the wider communities and thus expanding the food basket options, leading to better nutrition.

Index Terms- ALV, consumption, predictors, urban youth

I. Introduction

Local food systems and actions towards food sovereignty are closely related to their focus on enhancing the quality of life of the communities in which they are embedded (Randelli & Rocchi, 2017). The current global focus is on urban populations as more and more people move to cities worldwide in the midst of changing urban patterns of consumption and production, social interaction and cultural practice (IFPRI 2019). Food security and food sovereignty is not enough for good nutrition since a healthy household must practice good dietary feeding practices through food diversity and the nutritional condition of any population depends on the consumption of fruits and vegetables (van der Lans et al. 2012). Currently, many urban consumers in Kenya depend on one or two types of green leafy vegetables found in their food system thereby inhibiting them from deriving maximum nutrition benefits through vegetable diversification. This is happening in the midst of local contextualization of ALVs apparently being considered to be weeds in other contexts. This trend can change if consumers have salient contextual social referents who, through food interactions and cultural integration may enable new food experiences among each other. Moreover, diversity in vegetable consumption is a necessary condition for a healthy diet and can be achieved through consumption of ALVs which are known to contribute to dietary requirements of essential micronutrients and for addressing micronutrient deficiency (Hughes & Keatinge 2013; Kamga et al. 2013; Birol et al. 2015, Singh et al. 2012, 2013) and acknowledged as part of a healthy diet due to their contribution in reducing risks associated with degenerative diseases. However, the application of ALVs among the youth in Kenya is limited due to lack of knowledge and their contextual upbringing and also the sensory properties regarding taste that are not appreciated by most of them. Cultural categories such as ethnic background, prior knowledge and consumption, cultural preferences, inter urban-rural mingling, age, gender and social status may influence ones choice of vegetables. Cultivar differences in aroma, texture, color, taste and after taste may also influence consumer acceptability (Meilman et al, 2015). Food acceptance may be affected by food habits, attitude, and beliefs, Jaeger (2006), Urala & Lähteenmäki (2004)], with culture (i.e., tradition) serving as one primary factor that underlies food choices (Köster, (2009), Rozin (1988), Lähteenmäki (2004). Differences in the food environment, dietary experiences across cultures and multiple use of food may influence the preference for sensory characteristics of food products. Similarly, familiarity with food products also may affect food choice (Frez-Muñoz, Steenbekkers & Fogliano (2016), and food beliefs and potential acceptability. Motivating consumers to change their behaviour by transmitting knowledge or influencing personal values and attitudes may happen especially when placed in a context where the norms are different from routine.

The consumption levels and frequency of ALVs among the older populations continues to increase as their popularity for potential nutritional and health benefits and consumer awareness have increased. However these benefits are still low among the youth. Rogers (2003) adoption criteria may be interesting to observe in some contexts whereby African leafy vegetables are adopted through observability and triability, given the advantage of the new product, until one becomes acculturated by their social interactions. This theory has been used successfully in many fields

including communication, agriculture, public health, and others that typically aim to change the behavior of a social system.

This study assessed the consumer knowledge, attitude and consumption of ALVs in general among University students and the social factors that would enhance their interest level within the university context. Although university students by no means represent average consumers or the general population, they were used as respondents because they fall in the pre-adult category (18-24 years). Thus, they face numerous consumer roles and opportunities to actively learn about and influence a wider adoption of positive consumer-related behaviors as compared to consumers in the later years of their life cycle (Moschis, 1987). The university student community is culturally diverse and they are bound interact on a personal and group level and integrate with each other, and begin to have a sense of belonging and therefore learn from each other especially in the context of food which is a basic need and is also known to be an easy way of communicating diverse cultures having emerged from different tribes, communities and regions. Park and Burgess (1921) defined the concept as a process of fusion and permeation through the sharing of a person or group's experience and history, to ultimately incorporate them in a common cultural life with others through assimilation. Mennell, Murcott, and Van Otterloo (1992) explain that the practice of eating food together signals social solidarity, which acknowledges the equality within the group due to being socially similar. The University of Eldoret is located in a region where a lot of ALVs are grown and therefore the students will come across them especially during market days and during their season of plenty, they are highly affordable compared to when they are out of season. Unlike the youth ALVs are becoming a favourite among adult populations as they have learnt to appreciate their unique taste and nutrition which they have learnt over time. Unlike the high value vegetables such as kales and cabbages which have become monotonous to them and it is not also practically easy to choose a variety that will be palatable and tasty when cooked.

Thus, for the purpose of this paper, integration simply refers to the extent of intercultural interactions and exchanges amongst students, to transcend their cultural differences and create an effectively diverse community. Furthermore, food symbolizes people's ethnic differences allowing them to retain their cultural distinctiveness despite being physically separated from their indigenous geographical location (Beardsworth & Keil, 1997).Since our main focus is on integration between university students, our understanding of culture is through the lens of the students themselves. Hence, culture is understood primarily as its members' general consensus on certain aspects which is regarded to be inherently characteristic of that culture (Wan & Chiu, 2009). Several external and internal factors may influence consumers' decision-making processes in this context and the analysis of these aspects may provide better understanding.

The Table below shows a list of ALVs that are commonly consumed by various communities.

Table 1: Common African leafy vegetables

Scientific name	Common name	Local name
Gynandropsis gynandraa	Spider flower	[1]Akeyo, [2]Tsisaga [5]Chinsaga , [8]Mgangani
Corchorus olitoriusa	Jute vegetable	[2]Mutere, [1]Apoth, [3]Mlenda
Solanum nigrumb	Black nightshade	[3]Mnavu, [2]Lisutsa, [5]Rinagu, [4]Managu, [8]Ndunda
Vigna unguiculataa	Cowpea	[1]Boo, [2]Rikuvi [3]Kunde, [5]Egesare, [6]Ngunyi
Cucurbita sppa	Pumpkin leaves	[1]Susa, [2]Riseveve [4]Malenge, [5]Rirosa, [6]Nenge

[1] Luo, [2]Luhya, [3]Kiswahili, [4]kikuyu,[5]kisii,[6]kamba[7]Meru,[8]Taita; **Source:** Onyango et al., (2000)

II. Methods:

A survey was conducted among students at University of Eldoret located in the Rift Valley region of Kenya. Stratified and systematic random sampling was used to select 315 respondents who were selected in order to achieve a balanced laid out criteria to include year of study, gender, and region of origin (whereby the study targeted western, eastern, coastal and rift valley parts of Kenya) noting that each region of the country has varied food consumption habits. Data collection was performed between September and October 2016 using a structured self-administered questionnaire which consisted of three parts. In the first part, demographic characteristics, year of study, country area of origin and gender were elicited. The second part requested for prior information on predictors of food decision making. These included individual (taste perception), demographic (cultural characteristics), psychological (nutrition cognitions, food knowledge and skills. Other predictors were interpersonal in nature such as social influence, cultural cognitions/behaviors, food type, exposure and market price affordability. They were asked whether they agreed with each of the motives and finally requested to rank the motives on a 5-point Likert type scale at strongly agree (5) or strongly disagree (1) with the sentences related to their motives of food choice. The data obtained was coded into SPSS 20. In order to understand demographic differences related to the motives for food choice, relationships between variables were obtained using Chi square and ANOVA.

III. Results and Discussion

Based on a sample (N=315) of university undergraduate students, 45% (n=142) were males and 55% (n=173) were females. The higher number of females was proportional to their greater representation in the sampling frame. A variety of regions from which the students come from were represented including Western (35%), Eastern (27%), Rift Valley (27%), and Coast (11%). An approximately equal percentage of first years (24%) second years (26%) and third and fourth years (25% each) participated in the study (see Table 2).

Table 2: Distribution of respondents according to sex, country region of origin and year of study

Variables		No of respondents	Percentage (%)
Sex			
	Male	142	45
	Female	173	55
Country Region of Origin			
Western		110	35
Eastern		85	27
Coast		35	11
Rift Valley		85	27
Year of Study			
First		76	24
Second		82	26
Third		78.5	25
Fourth		78.5	25

N=315

The normative (interpersonal) or external influence of behavior was investigated by asking the respondents to rate their salient referents that possibly gave them motivation into higher consumption of ALVs within the University context. Majority (70%) indicated that it was their friends on campus whereas 65% attributed this to their boyfriend/girlfriend. By gender, the greatest influencer for behavior change was from the close friend (F =72%, M=40 %) that an undergraduate student had. Females are more likely to be motivated to adopt what referents introduce to them and make it a routine until they finally get acculturated and may give in to their suggestions especially adopting to new tastes in a new context than males, who are more self-oriented.

However, first years (50%) used their family members as referents more highly than the respondents in other years of study. It was however noted that the salience of family members diminished with advancement in year of study as the students began to get integrated with the cultural norms of campus relations and practices. These attributes seem to become more important to the individual with time as they discover themselves and begin to believe in context-referencing. Therefore, it seems like more fourth years (75%) had established close friendships within the campuses and were benefiting from their use as salient referents more than first years (35%). This could be due to the fact that University students are rarely with their family members and tend to use more of the referents within their spectrum, such as people they associate with closely. School education also seemed to be a progressive influence in adoption of ALVs with fourth years (72%) recording highest influence (see Table 3).

Table 3: Salient referents for consumption of ALVs

Salient referents	N	Percentage (%)			
		Males	Females		
Close friend	70	40	72		
Family members	55	35	54		
Boyfriend/Girlfriend	65	62	75		
School education	50	45	55		
By year of study		Year 1	Year 2	Year 3	Year 4
Close friend		35	50	65	75
Family members		50	40	38	35
Boyfriend/Girlfriend		40	55	65	78
School education		35	45	66	72

N=315; Males n=142; females n=173; First year n=76; second year n=82; third year n=78.5; fourth year n=78.5

The region of origin influenced the respondent's perceptions in buying into using the ALVs in their diets and they relied fully on the ideas and suggestions of their referents. Most of the respondents from Western Kenya (75%) were familiar with the ALVs and had prior market information whereas those with the least information included Eastern (45%) and Coast (35%). More females (55%) than males (40%) had prior consumption experience of ALVs and those from Western province (70%) recorded the highest level of prior consumption whereas those from Eastern (45%) and Coastal (32%) recorded the least (see Table 4). All respondents who consumed ALVs confirmed that there was need to have prior knowledge of types and preparation of ALVs since they have unique preparation methods with respondents Eastern (40%) and Coast (32%) region recording the least prior knowledge. The results indicate that gender had highly significant relationships with all the categorical attributes tested at $p<.05$ and $p<.01$, whereby there were more females than males with prior market information and prior nutrition information whereas more males than females had a significant perceived price affordability at $p<.01$. The respondents from western part of the country had more prior market information, regular consumption and positive taste perception all significantly different at $p<.001$ and $p<.05$. However, all the respondents did not differ significantly over nutrition information and perceived price affordability (see Table 4).

Table 4: Results showing the relationship between gender, origin and categorical variables

Categorical Variables	Male %	Female %	Chi-square χ^2	χ^2 Ratio
Prior market information	45	60	11.880	.0078**
Prior regular consumption	40	55	5.420	.1435
Prior taste perception	50	65	8.932	.0302*
Prior nutrition information	40	64	24.963	.002**
Prior knowledge in preparation	30	50	12.243	.001**
Perception of price affordability	60	42	16.802	.007**

	Western %	Rift Val %	Eastern %	Coast %	χ^2	sig
Prior market information	75	60	45	35	24.963	.002**
Prior regular consumption	70	62	47	32	11.217	.010*
Prior positive taste perception	65	58	34	30	10.193	.017*
Prior nutrition information	40	35	45	40	6.313	.097
Prior knowledge in preparation	55	50	40	32	7.420	.04*
Perception of price affordability	45	40	35	32	2.473	.480

N=315 (Western=110; Eastern= 85; Coast=35; Rift Valley=85; Males n=142; females n=173; *p<.05; **p<.01

All the variables correlated positively with year of study. As the respondents advanced in their studies, they seemed to have gathered more information, gained more nutrition information, consumed more ALVs, and become more regular consumers (see Table 6), noted significantly different at P<.05 and P<.001.

Table 6: Correlation results showing the relationship between year of study and variables

Categorical Variables	Year 1 %	Year 2 %	Year 3 %	Year 4 %	Pearson	Sig
Prior market information	42	56	67	78	.122	.048*
Prior regular consumption	40	57	67	78	.224	.001**
Prior positive taste perception	35	52	67	82	.213	.002**
Prior nutrition information	35	54	62	68	.122	.047*
Prior knowledge in preparation	32	45	67	80	.215	.001**
Perception of price affordability	40	42	42	45	.124	.073

*Significant at P < .05, **Significant at P < .01; First year n=76; second year n=82; third year n=78.5; fourth year n=78.**5**

ANOVA test of differences between means showed progressively higher scores as the respondents advanced in their studies. Significant differences between groups were noted in current adequacy of market information whereby fourth years had the highest mean, (4.09) at p<.05, compared to first (3.21) and second years (3.54). The fourth years also registered the highest mean for the regular consumption (4.08) significantly different at p<.05 with first years (3.28). Price affordability also recorded a high mean for fourth years, indicating that they found the price most affordable (4.13), significantly different from 1st and 2nd years. There were no significant differences in taste perception between groups (see Table 5). Even though the fourth years equally scored the highest mean (4.36), indicating that positivity in taste perception increases with interaction within the social context in ALV consumption.

Table 5: ANOVA Table showing year of study and current categorical variables of ALVs

Categories	Year 1	Year 2	Year 3	Year 4
I have Adequate market information	3.21^{b}±0.334	3.54^{b}±0.225	3.96^{a}±0.358	4.09^{a}±0.490
I am a regular consumer	3.28^{b}±0.417	3.55^{a}±0.385	4.01^{a}±0.320	4.48^{a}±0.324
I have positive taste perception	4.18^{a}±0.177	4.07^{a}±0.263	4.24^{a}±0.379	4.36^{a}±0.410
I have Adequate nutrition information	3.93^{a}±0.33	4.04^{a}±0.21	4.20^{b}±0.230	4.33^{a}±0.432
I have skills in preparation of ALVs	3.22^{a} ±0.301	3.70^{a}±0.07	4.02^{b} ±0.220	4.32^{b} ±0.315

I find the price affordable	$3.84^{a}\pm0.428$	$3.89^{a}\pm0.02$	$4.12^{b}\pm0.471$	$4.13^{b}\pm0.636$

Values represent the means of Likert 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree. Values with the same superscript letters along the same row are not significantly different ($P<0.05$) as assessed by Fisher's least significant difference

IV. Discussion and Conclusion

From our analysis, we find that ALV consumption within a University context is an important factor in socializing and contributes strongly to one's sense of belonging to a cultural group, supporting the relationship suggested in the literature review. It is also important to note that background origin of a consumer matters since that is where consumption patterns originate from. We also find that close social referents are important in introducing food diversity in one's diet right from the original cultural context into a new context. In the study context, we find that learning new food behavior is progressive and grows with time until one gets deeply acculturated into the new food norms through appreciating group identity. All these findings corroborate the existence of gender differences in consumer food-related behavior whereby prior knowledge of ALVs from a context may favour females since they are particularly found in the food context more than males. On the other hand, mixing different vegetables and cooking them to make one dish as traditionally observed in many African communities improves the texture and taste to a more desirable level for consumers and should be encouraged using modern recipes that are more attractive to youthful populations to avoid monotony. It is noted from this research that positive taste perception increases with time through observability and triability during the adoption phases of a culturally oriented food.

It is important that future research explore the reasons why those differences exist and, also, why in some cases men and women have similar behaviors and opinions. Consumer dietary diversity consumption of vegetables complements the nutritional value and reduces the toxic levels that would otherwise be harmful to health. Such concepts can easily be applied to sharing food between people of different cultures, by recreating a sense of place around food production, preparation and consumption, which is shared and reinforced through socialization. In general, the findings are in accordance with those of other studies on consumer attitudes towards food and nutrition (Wang et al 1995; Childs and Poryzees 1998; Childs and Poryzees 1998, Harnack et al 1997; De Jong et al 2004; Turrell 1998; Bogue et al 2005).

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AUTHORS

First Author – Mugalavai, Violet K, Department of Family and Consumer Sciences, School of Agriculture & Biotechnology, University of Eldoret, Kenya
Second Author – Omutimba, Harriet N.O, Department of Philosophy and Religious Studies, School of Humanities and Social Sciences, Pwani University, Kenya