

LEVEL OF AWARENESS AND WILLINGNESS TO PAY FOR ORGANIC VEGETABLES IN SINDH PROVINCE OF PAKISTAN

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ABSTRACT: *This study is aimed to explore the level of awareness and preferences of consumers for organic vegetables and consumer's willingness to pay for organic vegetables. The current study is based on primary data. Sample size of for this study was 150 respondents. These respondents were selected from randomly selected six villages of three districts (Jamshoro, Hyderabad, and Mirpurkhas) of Sindh province of Pakistan. Data revealed that the majority of respondents know about health benefits of organic vegetables while a significant number of respondents i.e. 34 percent did not know about organic vegetables. About 82 percent of respondents were unaware of environmental benefits of organic vegetables. Majority of respondent prefer to pay extra price for purchasing organic vegetables. The results highlight that if farmers are encouraged to grow organic vegetables they can earn higher profit and consumers can have healthy food.*

Keywords: Organic, Vegetables, Awareness, Health, Environment.

INTRODUCTION

Pakistan is bestowed with numerous natural resources like fertile soil, irrigation water and variety of climate. A huge variety of food crops are produced in this agrarian country to cater food requirements of its fast growing population. Population of Pakistan is more than 182.1 million in 2013 and is increasing by the growth rate of 4.4 percent per year [1]. To meet food requirements of this populous country, enormous production of food is required. This level of food production can be achieved by taking both crop production and protection measures at post-harvest and pre-harvest stages of crop production. Among various food crops, vegetables are most threatened by the proliferation of insects and results in massive loss of yield. Pesticides are believed to be an inevitable tool in controlling these pests. In Pakistan high use of pesticides is observed during the past four decades. In Pakistan use of pesticides started from 1954 when more than 254 metric tons of pesticide products were imported. Quantity of pesticide import increased to 20648 metric tons in 1987 [2].

In almost all developing countries, including Pakistan pesticides are used at a very high level in order to increase yields of various food crops especially vegetables. For the better yield and apparent quality, insecticides are repeatedly applied during the entire period of production and sometime pesticides are also applied at the fruiting stage of vegetables. Use of pesticides plays a significant role in protection of plants, but as side effect use of pesticides created problems such as resistance of pesticide in pests, toxicant in ecosystem, health hazards for pesticide applicators and diseases for consumers of food. As a result of pesticide applications the vegetables absorb the agrochemicals; which on consumption by human beings create health hazards to human population. In many cases presence of harmful residues in agriculture food products are beyond world health organization (WHO) acceptable limits. Literature highlighted the impact of high use of pesticides on health of food consumers [3].

Main concern of farms is output maximization and private cost minimization, while consumers are mainly concerned about the ingestion of harmful pesticides through highly contaminated food products therefore consumers are always

seeking for safe agricultural food products. In this situation organic food can play very significant role because it is environmentally friendly and best for human health. Organic farming is considered as a best strategy to produce healthy and good quality agricultural products to meet the consumption requirements of consumers [4]. Organic products are safe to consume because they contain significantly no or lower levels of pesticide and fertilizer residues as compared to conventional food [5]. Organic farming not only maintains the environment, but it also improves public health and brings significant benefits both in the economy as well as to the social cohesion of rural areas. Importance of organic food is increasing in developed countries due to consumer's concerns about high use of chemicals in agricultural food commodities and potential impact of those chemicals on human health and quality of surrounding environment. In Europe, western countries, United states, Australia and New Zealand there are a large number of studies on consumer's perception regarding organic food [6,7,8,9,] but in Asia little is known about the consumer's perception for organic foods or food with low chemical or no chemical use [10,11].

The data on organic farming in different countries of Europe demonstrates that farmers are quickly shifting from conventional farming practices to the organic farming system [12,13]. Despite the fact that vegetables with low chemical use are safe, its production and consumption in Pakistan is low at a significant level. In Pakistan only few farmers are practicing organic production techniques. Pakistan have only 20,310 hectares under organic farming. If we look the land under organic management in percent of the total agricultural area in the country, Pakistan have only 0.07 percent of total agricultural area. The number of organic farms in Pakistan is only 28. In Sindh province of Pakistan production of organic vegetable is very rare and only few farmers are growing organic vegetable just for their own use not for commercial purpose. Moderate or judicious level of pesticide use is assumed to have no or minor impact on human health. In Sindh province of Pakistan application of pesticides in vegetables is very high and on different farms different types

and level of pesticide (pesticide, weedicide and herbicide) are used [14].

In Pakistan there is high gap of information regarding consumers' awareness and preference about organically produced vegetables and consumer's willingness to pay for purchasing organic vegetables. The present study aims to fill this gap of information by providing insights into the consumers' preferences about organic vegetables and investigate the consumer's willingness to pay for purchasing organic vegetables. The specific objectives of the study are to explore the level of awareness in consumers regarding organic vegetables and investigate the consumer's willingness to pay for purchasing organic vegetables.

METHODOLOGY

To accomplish the objectives of the study both primary and secondary data was used. A total number of 150 respondents were randomly selected from 3 districts (Jamshoro, Hyderabad, and Mirpurkhas) of Sindh province of Pakistan. From each district two villages were randomly selected and from each village 25 respondents were interviewed. As males are the main decision makers of all farming decisions in rural areas of Sindh therefore in order to get proper information all respondents of the present study are male respondents. Data were collected from the respondents by a well-structured and pre tested questionnaire. The questionnaire was designed to obtain information on socioeconomic status of respondents and respondent's level of awareness regarding organic and inorganic vegetables. In addition to that questions were also included to know perceptions of respondent to pay level of prices for organic vegetables as compared to inorganic vegetables.

RESULTS AND DISCUSSION

This study was aimed to explore awareness level of farmers and consumers regarding organic vegetables and to investigate consumer's willingness to pay for purchasing organic vegetables. The socio economic characteristics of the respondents, including age, education, marital status, profession, family size, monthly income of household and the expenses per month are described in Table-1. The results revealed that the majority of the respondents, 36 percent respondents were representing middle age group (30-40 years), while 31.3 percent were younger falling in the age group below than 30 years, followed by 22.7 percent were in age group 41-50 and only 9.3 percent respondents were belonging to age group above 50 years. Majority (28 percent) of the respondents were educated up to matriculation while 26 percent have got education up to intermediate level and 25.3 percent respondents were educated up to graduation level, among them 10 percent of the respondents just got primary education while 10.7 percent got higher education and did post-graduation. Analyzing marital status of the respondents, data in Table-1 reveals that most of the respondents 85.3 percent were married and only 14.7 percent were unmarried. The results of the study further describe that 45.3 percent participants were farmers, 24 percent of the respondents had government jobs, 8 percent respondents

having shops and 22.7 percent respondents were generating their income from other sources.

Table 1. Demographic characteristics of sample respondents

Variables	Frequency	Percentage
Age	<30	47
	30-40	55
	41-50	34
	>50	14
Education	Primary	15
	Matric	42
	Intermediate	39
	Graduate	38
	Post graduate	16
Marital Status	Married	128
	Unmarried	22
Profession	Govt. Servant	36
	Shopkeeper	12
	Farmer	68
	Others	34
		22.7

Table 2. Demographic characteristics of sample respondents

Indicator	Average	Maximum	Minimum
Family size	9	25	1
Monthly Income (Rs.)	24327	100000	5000
Monthly cost of buying vegetables (Rs.)	3167	9000	500

Data also shows that the average household size was 9 members having minimum 1 too maximum 25 family members. The data revealed that average monthly income of sample households was Rs. 24327 with maximum Rs.100000 and minimum Rs.5000 per month. When respondents were asked about their monthly expenditure on purchasing vegetables for their household use, they informed that their average monthly expenditure on purchasing vegetables is Rs. 3167 (Table-2).

One of the main study objectives was to know about the awareness level of respondents about organic vegetables and its benefits. Data in Figure-1 shows very positive results in that regard. Majority of 66 percent from the sampled respondents were well aware about the organic vegetables while 34 percent of respondents show their unawareness with regard to organic vegetables. Further, when respondents were asked about organic vegetable's impacts on health, majority (68 percent) of respondents were aware about the benefits of organic vegetables on health, while 32 percent were unaware about health benefits. Similarly, majority (82 percent) of respondents was unaware about environmental benefits of organic vegetables while just 18 percent respondents were aware about positive impacts of organic vegetables on environment.

When respondents were asked about the sources of their knowledge with respect to organic vegetables, the data in Figure-2 revealed that majority of respondents (46.5 percent) informed that friends and family members as their main source of information regarding their knowledge with respect to organic vegetables, followed by 26.20 percent referred television, 8.10 percent indicated radio, and 6.10 percent got knowledge from newspaper, while 13.10 respondents got awareness from various other resources like books, digests, etc

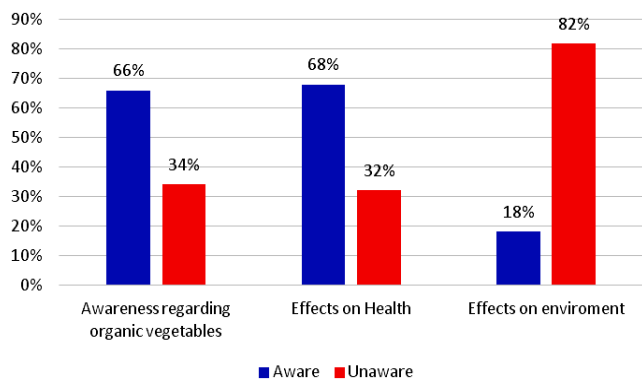


Figure 1. Level of awareness of respondents regarding organic vegetables and impacts on health and environment

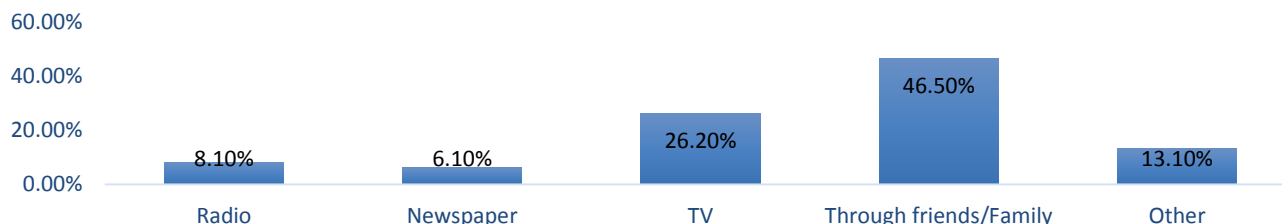


Figure 2. Source of knowledge of respondents for organic vegetables

told presence of Karate insecticide chemicals in vegetables while 100 percent respondents shown their preference to avoid risks associated with consumption of inorganic vegetables. Analyzing respondent's willingness to purchase organic vegetables data in Table-3 indicated that majority 65 percent were ready to purchase organic vegetables while 35 percent respondents were unwilling to purchase organic vegetables.

Respondent's preference to pay extra price for purchasing organic vegetables was also investigated and data shown in Figure-3 indicated that 25 percent respondents were willing to pay 50 percent extra price to purchase organic vegetables, 24.20 percent were willing to pay 20 percent higher price, respondents who were willing to pay up to 40 percent higher price were 17.40 percent of sample respondents, while 13 percent respondents were even willing to pay up to 100 percent extra price in order to purchase organic vegetables. As the education level of all of sample respondents is high therefore they know about the hazards of inorganic food and benefits of organic vegetable, therefore majority of respondents are willing to pay higher prices for purchasing organic vegetables.

In order to know the perceptions of respondents, several statements were shared with respondents on the basis of research studies with regard to the positive impacts of organic foods on health and environment besides quality features. Data shown in Table-4 indicated that 67 percent respondents were strongly agreed that organic production makes the environment safe while 19 percent agreed, 13 percent said somewhat, only 1 percent disagreed with the above statement. When they were asked about research studies which tells us that organic products are healthier, 53 percent strongly agreed, 29 percent agreed, 16 percent said somewhat while 2

.Respondents were also inquired about their knowledge about inorganic vegetables production by using chemical pesticides, types of chemicals and their impacts on health and environment. Data results summarized in Table-3 indicated that the majority of respondents (58.7 percent) were unaware about the presence of chemicals in inorganic vegetables while 41.3 percent were aware of the presence of chemicals in inorganic vegetables. Awareness level of respondents regarding types of chemicals was also analyzed, for which data revealed that 40.3 percent respondents indicate presence of Ameda insecticide, 35.5 percent respondents mentioned Thiodon chemical, followed by 24.2 percent respondents who

percent were disagreeing with the statement. Further, 63 percent responded strongly agreed and 13 percent that organic foods are tastier, 22 percent said somewhat, 2 percent disagreed. 76 percent respondents were strongly agreed, 10 percent were agreed, and 12 percent responded somewhat and just 2 percent were disagreed with the statement that organic products have no harmful effects. With regard to organic products quality 74 percent were strongly agreed, 13 percent agreed, 10 percent said somewhat, and 3 percent were disagreed. To know the perception of respondents with regard to expensiveness of organic products 43 percent were strongly agreed, 30 percent agreed, 25 percent responded somewhat and just 2 percent disagreed that organic products are more expensive than inorganic products.

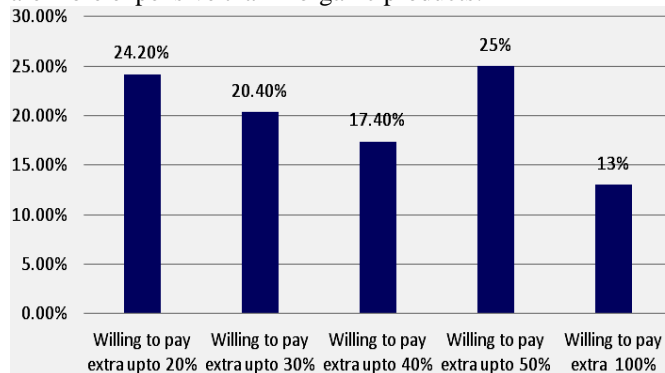


Figure 3. Percentage of price that respondent is willing to pay extra for purchasing organic vegetable as compared to inorganic vegetable

Worldwide the literature on consumer choices, demand and preferences for organic products is growing [15,16,17,18,19,20,21,22,23] with increasing consumer's concern regarding health hazards of conventional vegetables and other food products. Literature [24] demonstrated that knowledge is an important variable in shaping attitudes on organic food. If the consumer already has a good knowledge of organic food and health, then it is easier to form purchasing of organic food. Results of the current study revealed that majority of respondents have high level of education therefore they know about the hazards of inorganic food and benefits of organic vegetable therefore majority of respondents are willing to pay higher prices for purchasing organic vegetables. Majority of respondents (66 percent) know about the organic vegetables while a significant number of respondents i.e. 34 percent did not know about organic vegetables. More than 68 percent of respondents were aware about the benefits of organic vegetables with reference to health impacts.

Table 3. Awareness regarding inorganic food and effects of chemical residues

Variables		Frequency	Percentage percent
Respondent's awareness level regarding presence of chemicals in inorganic vegetable	Yes	62	41.3
	No	88	58.7
Level of respondent's awareness regarding types of chemicals in inorganic vegetables	Ameda	25	40.3
	Thiodon	22	35.5
	Karate	15	24.2
Preference of respondents to avoid health risk associated with use of inorganic vegetables	Yes	150	100
	No	0	
Willing to purchase organic vegetables	Yes	98	65
	No	52	35

Table 4. Perceptions of respondents about organic vegetables

Index of perception	Strongly disagree (%)	Disagree (%)	Somewhat (%)	Agree (%)	Strongly agree (%)
Production of organic products makes the environment safe	0	1	13	19	67
Organic products are healthier	0	2	16	29	53
Organic products are tastier	0	2	22	13	63
Organic products have no harmful effects	0	2	12	10	76
Organic products have superior quality	0	3	10	13	74
Organic products are more expensive	0	2	25	30	43

Researchers suggest that organic food is preferred by the consumers because of its status as better, fresh and safe food for health [25,26,27,28]. Another attribute of organic food is its positive environmental effect because it is grown without high use of chemicals [29]. In this regard it is important that concerns of consumers are less about environmental pollution, but they are more concerned regarding their private benefits such as their health [17,18,30]. Healthiness of organic food is the main reason for purchasing organic vegetables [26,28,31]. Consumers also prefer organic vegetables due to their concern about their children's health [9,22,32,33,34].

CONCUSSIONS

Results of above studies support results of current study. In current study more than 82 percent of respondents were unaware about environmental benefits of organic vegetables. Respondent's preference to pay extra price for purchasing organic vegetables was also investigated and data indicated that 24.20, 20.40, 17.40, 25.00, 13.00 percent of sample respondents were willing to pay Rs. 20, Rs. 30, Rs. 40, Rs. 50 and Rs.100 respectively extra price as compared to conventional vegetables to purchase organic vegetables. These results are very hopeful and highlight that if farmers are encouraged to grow organic vegetables they can earn higher profit and consumers can have opportunity to have healthy food.

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