



## Seafood Consumption Attributes and Buying Behaviours According to the Generations: A Study on Millennial Generation in Turkish Market

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### ABSTRACT

This paper focus on the seafood consumption attitudes and behaviours of the millennials (Generation Y) and non-millennials (Generation X, Baby Boomers and Silent Generation) comparatively. The data was collected from a face to face survey which was applied to randomly select 407 individuals in the city of Adana, Turkey in November 2016. As a result of factor analysis applied in the study, it was found that Millennials was significantly and inversely correlated with consumption of wild fish and freshwater fish. Non-millennial generation was inversely correlated with consumption of marine fish, freshwater fish and mussels and the correlation is insignificant. According to the results of the chi square test, it was determined that Millennials mostly preferred to consume fresh (unprocessed) fish. Mann-Whitney test results show that they value health and nutrition factors for consumption and there is a significant difference between these two factors. Besides, factors mainly effecting their purchase behaviour of seafood are directed to freshness, seasonality, place of purchase and wild-aquaculture product classification and there are significant differences between these factors. The fact that the Millennial's average response to consumption and purchasing is higher indicates that they are more cautious.

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### Introduction

Consumer behaviour discipline is frequently used in food consumption studies to examine the common behaviours and choice patterns of different demographic groups on decision-making process (Rugimbana, 2007).

Food consumption behaviour of consumer groups with common attitudes has been one of the topics that marketers focus on in recent years. Studying on the generations, a group of people who were born in about the same years and shared similar cultural experiences, could present considerable results for analysing the common food consumption attitudes. Differences in values, beliefs and experiences among generations bring different food consumption behaviours together. For this reason, it is very important to understand the food consumption behaviour of the generations, especially the ones more influential on markets. (Inglehart and Carballo, 1997; Lancaster and Stillman, 2003).

While for many years the Baby Boomer generation (1946-1965) has dominated the market with the largest purchasing power in the economy, this group is aging and Millennials (Generation Y) (1980-2000) have begun to take their position. The Millennials are three times bigger than the Generation X (1966-1979), and constitutes the largest market since the Baby Boomers (Ordun, 2015).

Millennials deal with initial, huge, exciting and dynamic changes in the society during their growing period. They experienced many first-time events like opportunities of virtual business, gender equality and dual income in the households. They also consider the thoughts of interest groups and non-governmental organizations in their decision-making process (Reeves and Oh, 2008).

Millennial generation is spending about \$ 200 billion annually and expecting to represent half of the total consumer population by 2020. They also influence purchasing decisions of the families and older generations, thus have a great direct and indirect effects on the World economy. Due to their population size and high purchasing power, consumer behaviour researches and marketing practitioners create special interest on Millennial generation compared to the others (Morton, 2002; Nichols et al, 2015; Muralidharan et al., 2017).

The main factors affecting their purchasing process are the convenience, price suitability and the value created by the retailers. They also have a loyalty to the brand and the seller and give more importance to convenience and experiential qualities comparing with the other generations (Hewlett et al., 2009; Kuhns and Saksena, 2016).

Food consumption patterns of the Millennials have great influence on the food sector thus this generation is at the focus of food marketing activities more than ever. Food consumption attributes of this generation has started to change through healthier, easy to consume and fresh food products and accordingly, they prefer rather to consume food at home instead of eating out. Factors shape consumer preference of the Millennials are mainly based on origin, quality, safety/health concerns, variety, and environmental concerns. Same as other product consumptions, they also have the potential of effecting food consumption decisions of the previous generations (Rugimbana, 2007; Kuhns and Saksena, 2016; Twenge, 2010; Terano et al., 2016).

Millennials are mainly interested on healthful, adventurous and environmentally sensitive products including local and sustainable foods, thus millennials can easily be associated with seafood product group. However, the total amount of seafood purchase of millennial generation is still low. This low purchase situation is strongly related with the relatively inconvenient preparation of the seafood products. Even so, this consumer group have not yet been investigated much about their attitudes towards seafood and therefore satisfactory data is not available on this subject (Blank, 2014).

The fact that Millennials are making more food expenditures and could influence the previous generations, it is important to investigate this generation in terms of food consumption (Pesket, 2006). In this study, the attitudes and behaviours of the Millennial generation in relation to the consumption of seafood products were analysed by comparing with other generations that make food purchase. In this context, seafood consumption behaviours and patterns and decision-making process on seafood purchase of the related generation were determined. The results of the research can contribute to the production and marketing efforts of the units in the seafood sector and the satisfaction of the pleasure and preferences of the relevant consumer group at higher level.

## Material and Method

### Material

The research group of the study is named as Millennial Generation (Generation Y). Millennials is the name of the generation who was born between 1980-2000 and constitute 23% of the European and 25-27% of the population of USA (Morton, 2002). In terms of age distribution, Turkey has a very young population with the median age 30.1. and millennial generation members constitutes 35% of the population. The median age of the Adana province, where the research was conducted, is 29.3 which is under the country average (Güney and Sangün, 2017). In order to make comparisons with Millennials other generations buying food products were also considered at the research which was named as non-millennials (Generation X, Baby Boomers and Silent Generation).

To investigate the seafood consumption attributes, patterns and purchase behaviours of the research generation (Millennials) a consumer survey was designed by the authors.

The following formula was calculated to determine sample size of the research (Yazicioglu and Erdoğan, 2004).

$$n = \frac{N \times t^2 \times p \times q}{d^2 (N-1) + t^2 \times p \times q}$$

$n$ =Sample size;  $N$ =Population size;  $p$ =Frequency of occurrence of the event to be investigated (%50);  $q$ =Unrecognized frequency of events to be investigated (1-p) (%50)

$t$ =t value (1,96);  $d$ =Absolute error or precision as mentioned in previous section (Usually 0,05 or 0,10)

The survey was applied to 407 individuals in the Adana province of Turkey which 347 of them was consuming seafood regularly. Within these consumers, 267 of them consist from the research generation group, Millennials. The survey questions were designed based on quaternary scale where 1 represents insignificance and 5 represents extremely importance.

### Method

In the study, factor analysis was applied to group the consumption frequencies of the Millennials' seafood varieties. Factor analysis combines variables with high correlation where two or more characteristics are being evaluated at the same time in the investigations. Thus, it is a method that is used to create new explanatory common groups by having at least information loss and independent of each other and fewer variables (Sangün et al., 2009; Dölekoğlu et al., 2014).

The basic factor analysis equation can be presented in matrix form as;

$$Z = \lambda F + \varepsilon \quad (1)$$

Where:

$Z$  =  $A$   $px1$  vector of variables

$\lambda$  =  $A$   $pxm$  matrix factor loading

$F$  =  $A$   $mx1$  vector of factors

$\varepsilon$  =  $A$   $px1$  vector error (Sharma 1996).

In our study, the correlation matrix of variables was used to obtain eigenvalues. In order to facilitate interpretation of factor loadings ( $l_{ik}$ ), VARIMAX rotation was used. Factor coefficients ( $c_{ik}$ ) were used to obtain factor scores for selected factor (Keskin et al., 2007).

In the study, the Mann-Whitney U test was applied to test whether there is a statistical difference between the factors that are effective on the consumption and purchase behaviours of fish products of Millennial and non-millennial generations. The categorical data obtained from the respondents were tested with Chi square test. The results were interpreted according to the significance level of 0.05 and 0.01. The data analyses were performed using SPSS 20.0 (SPSS Inc., Chicago, IL, USA).

## Results and discussion

When the demographic structures of the individuals belonging to the Millennial generation participating in the survey were examined, it was determined that the education level of the generation concerned is considerably higher than the other generations. It is found that 89.5% of the consumers including the research group have education level of high school or over while 27.3% of them have the university degree. 32.2% of the employees in the research group work in private sector and 19.1% own their businesses and 17.6% of the generation is unemployed. 39.3% of the millennials do not have a regular income and 37.8% of has income level between 1000-2000 Turkish Lira. The household size is mainly 4-5 people (57.3%) and homeland of the majority (78.7%) is the Mediterranean region.

Within the scope of the study, the frequency of consumption of seafood products on the basis of varieties of the millennials has been revealed. The results of the Rotated Component Matrix obtained by the factor analysis are given in Table 1.

According to the factor analysis, the frequency of consumption of seafood of the millennials and non-millennials constitute 3 groups. For millennials,

consumption of marine fish and fresh water fish constitutes the first group, and it is observed that there is a negative relationship between those two fisheries. In addition, Spearman's correlation analysis also showed that the correlation value was negative (-0.39) and significant ( $P < 0.01$ ). This negativity indicates that consumers of marine fish generally does not consume fresh water fish, or vice versa. The same observation is existing for non-millennials but differently mussel consumption added to the first factor group opposite but not significant correlation between consumption of marine fish and consumption of the other two seafood products emerged.

Other groups of seafood consumption for the millennials and non-millennials are similar. Second seafood group that is subject to consumption is squid, mussels and shrimp. The mentioned products generally reflect consumption away from home category like street food or restaurants. The third group, octopus, sea cucumber, lobster and crab, formed a group of fisheries products with very low consumption frequency. Erdoğan et al. (2011) also found that consumers do not frequently consume octopus, lobster respectively.

In the study, the frequency of consumption patterns of the Millennial generation has been revealed.

Table 1 Rotated Component Matrix

Millennial	Component			Non-millennial	Component		
	1	2	3		1	2	3
Octopus	0.747			Lobster	0.863		
Clam	0.738			Octopus	0.788		
Lobster	0.702			Clam	0.762		
Crab	0.626			Shrimp		0.806	
Squid		0.815		Crab		0.790	
Mussel		0.764		Squid		0.629	
Shrimp		0.579		Fish (Fresh Water)			0.770
Fish (Fresh Water)			0.834	Fish (Sea)			-0.676
Fish (Sea)			-0.817	Mussel			0.591
Variance	2.749	1.366	1.167	Variance	2.559	1.654	1.255
% of Variance	30.549	45.182	12.961	% of Variance	28.436	18.373	13.948

Table 2 Chi-Square test results and frequency percentages for the frequency of seafood consumption patterns of the millennial generation

Consumption Form		Never	Rarely	Sometimes	Always	Total	Df	Chi-Square
Fresh	<i>f</i>	6	-	20	241	267	2	390.494***
	%	2.2	-	7.5	90.3	100		
Frozen	<i>f</i>	199	14	480	6	267	3	364.266***
	%	74.6	5.2	18.0	2.2	100		
Marinated	<i>f</i>	236	17	13	1	267	3	574.273***
	%	88.3	6.4	4.9	0.4	100		
Smoked	<i>f</i>	254	7	6	-	267	2	458.854***
	%	95.2	2.6	2.2	-	100		
Salted	<i>f</i>	246	13	6	2	267	3	642.738***
	%	92.2	4.9	2.2	0.7	100		
Canned	<i>f</i>	216	12	31	8	267	3	449.479***
	%	80.9	4.5	11.6	3.0	100		
Dried	<i>f</i>	259	5	2	1	267	3	738.408***
	%	97.0	1.9	0.7	0.4	100		
Pre-cooked	<i>f</i>	250	7	7	3	267	3	670.933***
	%	93.7	2.6	2.6	1.1	100		

\*\*\*:  $P < 0.001$

The chi-square test for frequencies of consumption patterns of the millennial generation show statistically significant differences ( $P < 0.001$ ) between consumption for all consumption patterns (Table 2). When the frequency of consumption is examined, it has been determined that 90.3% (241 respondent) of consumers do not prefer any type processed products and they prefer to consume seafood fresh. Erdoğan et al. (2011) also found similar result on fresh seafood consumption 96.59% are prefer consume seafood fresh) at their studies. Among the processed products frozen and canned products are the most notable preferences other than fresh consumption. In their study Erdoğan et al (2011) also stated that the most preferred processed product type are canned seafoods (37.64%) following by frozen seafoods (26.80%).

Factors affecting seafood consumption are analysed comparatively for millennials and non-millennials.

When the factors affecting consumption of seafood were examined, there is a statistically significant

difference between millennial and non-millennial generations (Table 3) for the factors health and nutritional ( $P < 0.01$ ). Although both groups place considerable importance on health and nutritional value factors, millennials are a bit more susceptible to these two factors. When other factors are examined (habit, prestige and taste), there was no statistical difference between the generation groups, but the values obtained are above the average and all factor effecting the consumption.

It has been analysed whether there are differences in the factors affecting the purchasing behaviour of seafood for millennials and non-millennials.

Table 4 shows that there is a statistically significant difference ( $P < 0.05$ ) between the millennials and non-millennials in terms of freshness, packaging, capture technique, price, availability, presentation, capture zone and season ( $P > 0.05$ ) where among other factors (type, size and wild or aquaculture) and there is no difference ( $P > 0.05$ ).

Table 3 Factors affecting consumption of seafood products of millennial and non-millennial generations

Factors	Generations	N	Mean Rank	Mean	Mann-Whitney U	Z
Health	Millennial	267	181.17	4.74	8766.500	-3.519**
	Non-Millennial	80	150.08	4.56		
Nutrition	Millennial	267	181.11	4.66	8782.500	-3.021**
	Non-Millennial	80	150.28	4.50		
Habit	Millennial	267	178.81	3.67	9396.500	-1.712
	Non-Millennial	80	157.96	3.49		
Prestige	Millennial	267	176.34	3.28	10054.000	-0.819
	Non-Millennial	80	166.18	3.11		
Taste	Millennial	267	173.68	4.16	10594.000	-0.123
	Non-Millennial	80	175.08	4.33		

\*\* :  $P < 0.01$

Table 4 Factors affecting purchasing behaviour of seafood for millennials and non-millennials.

Factors	Generations	N	Mean Rank	Mean	Mann-Whitney U	Z
Freshness	Millennial	267	178.73	4.90	9416.500	-2.965***
	Non-Millennial	80	158.21	4.76		
Packaging	Millennial	267	185.90	4.25	7504.000	-4.340**
	Non-Millennial	80	134.30	3.76		
Catching Technique	Millennial	267	182.53	3.80	8403.000	-3.031**
	Non-Millennial	80	145.54	3.48		
Price	Millennial	267	180.88	4.28	8842.500	-2.575**
	Non-Millennial	80	151.03	3.59		
Type	Millennial	267	176.99	3.70	9881.000	-1.070
	Non-Millennial	80	164.01	3.59		
Accessibility	Millennial	267	190.06	3.99	6392.500	-5.700**
	Non-Millennial	80	120.41	3.36		
Presentation	Millennial	267	187.81	3.85	6991.500	-4.878**
	Non-Millennial	80	127.89	3.24		
Capture Zone	Millennial	267	182.83	3.87	8322.000	-3.125**
	Non-Millennial	80	144.53	3.53		
Size	Millennial	267	178.12	3.50	9579.000	-1.450
	Non-Millennial	80	160.24	3.31		
Season	Millennial	267	185.05	4.34	7728.500	-4.160**
	Non-Millennial	80	137.11	4.01		
Point of Purchase	Millennial	267	179.73	4.49	9149.000	-2.352*
	Non-Millennial	80	154.86	4.39		
Wild or Aquaculture	Millennial	267	175.40	4.40	10307.000	-0.545
	Non-Millennial	80	169.34	4.43		

\*:  $P < 0.05$ ; \*\*:  $P < 0.01$

When Table 4 is examined, all factors affect purchasing behaviour at a high level for both generations, but we can see that millennials are more sensitive to packaging, price, availability and presentation. Geethalakshmi et al. (2013) also concluded that consumers are ready to pay a premium price for safe and quality seafood.

## Conclusion

In terms of food consumption, there is a close relationship between food consumption motivations of the millennial generation and the qualifications of seafood which increases the significance of studying the behaviour of this generation. Seafood consumption is influenced by many factors such as socioeconomic background, general food consumption patterns, personal health status of the consumers, and a number of attitudinal dimensions and previous studies regarding seafood consumption have shown that, like taste, health, nutrition and convenience, age is also an important determinant of seafood consumption behaviour (Erdoğan et al., 2011).

The results obtained from the research show that, the millennial generation's sensitivity and willingness to pay more for fresh product consumption is also valid in the case of seafood consumption, and this generation predominantly prefers to consume fresh fish. The other important forms of consumption are frozen and canned products, which are also very significant for this generation, who prefer consume food products mainly at home.

When the seafood consumption motivations of the millennial generation are examined compared with the non-millennial generation, it has been determined that all factors are important for both groups, while nutrition and health factors are forerunners for millennials. In the case of fish based products consumers are pay attention on quality and food safety and they are ready to pay a premium price for safe and quality food (Geethalakshmi et al., 2013). These factors also mentioned as they are important for general food consumption of this generation. For the other factors (habit, taste and prestige), while there is no difference between the generations' responses, the millennial generation gives more importance to the habit and prestige factors, the non-millennial generation gives more importance to taste.

When the buying behaviours of non-millennial and millennial generations are examined, both generations give importance to freshness, season, place of purchase and wild-aquaculture product type, and in general it is given a little more importance these factors by the millennial generation. About buying behaviour, the most different responses are observed in price, accessibility, packaging and presentation factors and millennials give more importance all to these factors. For other factors (capture technique, variety, location and size) there are no reaction differences between generations.

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## References

- Blank C. 2014. Top story: Meet the new boss-marketing to millennials. *Seafood Business Magazine*. Available from: <http://www.seafoodsource.com/news/environment-sustainability/top-story-meet-the-new-boss-marketing-to-millennials>.
- Dölekoğlu CÖ, Şahin A, Giray FH. 2014. Factor influencing the consumption of functional food in women: A study in the Mediterranean region. *Journal of Agricultural Sciences*, 21:572-584.
- Erdoğan BE, Mol S, Coşansu S. 2011. Factors Influencing the Consumption of Seafood in Istanbul, Turkey. *Turkish Journal of Aquatic Sciences*, 11: 631-639.
- Geethalakshmi V, Ashaletha S, Raj D, Nasser M. 2013. Consumer preference and willingness to pay for value added fish products in Palakkad, Kerala. *Indian Journal of Fisheries*, 60(3): 67-71.
- Güney OI, Sangun L. 2017. Olive oil consumption attitudes as a healthy food. A survey study on young consumers. *Agro Food Industry Hi-tech*, 28(4): 56-59.
- Hewlett SA, Sherbin L, Sumberg K. 2009. How gen Y and boomers will reshape your agenda. *Harvard Business Review*, 87(7-8):71-76.
- Inglehart R, Carballo M. 1997. Does Latin America exist? (and is there a confucian culture?): A global analysis of cross-cultural differences. *Political Science and Politics*, 30:34-47.
- Keskin S, Daskira I, Kor A. 2007. Factor analysis scores in a multiple linear regression model for the prediction of carcass weight in Akkeci kids. *J. Appl Anim Res.*, 31: 201-204.
- Kuhns A, Saksena M. 2016. How millennial food purchase decisions compare to previous generations. *Agricultural & Applied Economics Association Annual Meeting*, Boston, Massachusetts.
- Lancaster LC, Stillman D. 2003. When generations collide: Who they are? Why they clash. How to solve the generational puzzle at work: Harper Business. New York, USA. pp 42-49.
- Morton LP. 2002. Targeting generation Y. *Public Relations*, 47(2): 46-48.
- Muralidharan S, Rejón-Guardia F, Xue F. 2016. Understanding the green buying behaviour of younger millennials from India and the United States: A structural equation modelling approach. *Journal of International Consumer Marketing*, 28(1): 54-72.
- Nichols SB, Raska ND, Flint DJ. 2015. Effects of consumer embarrassment on shopping basket size and value: A study of the millennial consumer. *Journal of Consumer Behaviour*, 14: 41-56.
- Ordun G. 2015. Millennial (gen Y) consumer behaviour, their shopping preferences and perceptual maps associated with brand loyalty. *Canadian Social Science*, 11 (4): 40-55.
- Peskett S. 2006. Under-30s are the big spenders in UK market. *Harpers Journal*, 10.
- Reeves TC, Oh E. 2008. *Generational differences handbook of research on educational communications and technology*: Chapter: 25, Publisher: Taylor & Francis Group.
- Rugimbana R. 2007. Generation Y: How cultural values can be used to predict their choice of electronic financial services *Journal of Financial Services Marketing*, 11: 301-313.
- Sangün L, Cankaya S, Kayaalp GT, Akar M. 2009. Use of factor analysis scores in multiple regression model for estimation of body weight from some body measurements in Lizardfish. *Journal of Animal and Veterinary Advances*, 8(1):47-50.
- Sharma S. 1996. *Applied multivariate techniques*: John Wiley and Sons, Inc.
- Terano MR, Mohamed Z, Rezai G, Hanum Z. 2016. Preference for locally grown or imported fruit among the millennial generation in Johor. *Journal of Food Products Marketing*, 22(8):1-14.
- Twenge JM. 2010. A review of the empirical evidence on generational differences in work attitudes. *Journal of Business and Psychology*, 25:201-210.
- Yazıcıoğlu Y, Erdoğan S. (2004). *Spss uygulamalı bilimsel araştırma yöntemleri*. Detay Yayıncılık, Ankara.