

# Description of Knowledge, Attitude, and Consumption Behavior of Supplements Drink for the Elderly to Improve the Immunity Systems

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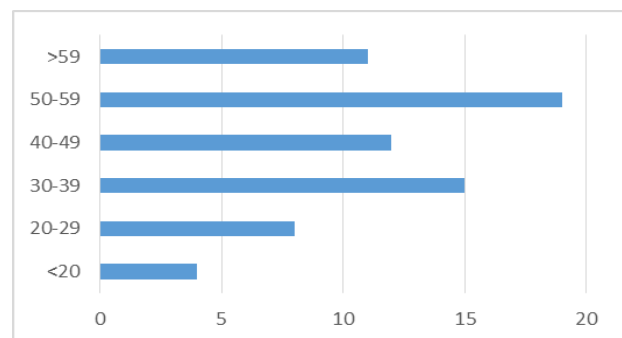
## ABSTRACT

At the end of March, Indonesia was shaken by a plague that attacks the respiratory system resulting in death. The virus is known as Covid-19 from Wuhan, China. Until May, cases of the spread of Covid-19 have increased in Indonesia with a mortality rate of 6.61%. Some areas have been identified as red zones, even East Java precisely in Surabaya Raya has been identified as a black zone. These conditions indicate the need for special handling of the spread of Covid-19. Beside wash the hands, use the mask, do the physical distancing, and go in for sport regularly, maintain and strengthen the body's immune system is one way that can be done to ward off the transmission of these virus and various other diseases, for instance, is to consume supplement drinks. The purpose of this study was to determine the level of knowledge, attitude, and behavior of the elderly in the consumption of supplement drinks during the pandemic. This research was non-experimental quantitative research with a descriptive design and used a survey approach. Data collection using an online questionnaire with the google form application. The sample is the elderly. The results showed that the age of the samples was 46-78 years; more than 50% of them graduated from a master's degree, and about 2/3 of respondents work as a civil servant. The majority of respondents consume supplement drinks in the form of powder and liquid, their reasons are to maintain their health and increase the stamina. The level of knowledge of respondents regarding beverage supplements is quite good, the attitude and behavior of the consumption supplements drink showed positive. This indicates that supplement drinks are considered important for the elderly to maintain health and support their work activities.

**Keywords:** supplement drinks, elderly, knowledge, attitude, and behavior, immune, covid-19

## 1. INTRODUCTION

Currently, Indonesia is spreading a new virus that attacks the respiratory system which can lead to death. The level of spread of the virus known as Covid-19 is very high, and this condition has made the Indonesian government designate the virus as a global pandemic that needs to be dealt with immediately. In Indonesia until May 18, 2020, there were more than 18,010 confirmed cases of the spread of Covid, of which 6.61% or as many as 1,191 people exposed to Covid-19 died and East Java Province was ranked the second-highest for cases of the spread of Covid-19 in Indonesia [1]. The elderly (elderly) are the people most easily exposed to this virus [2]. The following is data on the distribution of Covid-19 according to age and sex in Indonesia:



**Figure 1** The Spread of Covid based on Age Vulnerability in Indonesia [2]

Figure 1 shows that 50-59 years of age are the most affected by Covid-19. Age 50 and above is the age of

someone who is considered elderly. Exposure to the elderly can occur because the functions of the body organs are not in optimal conditions, so it will affect the body's immune system. During this epidemic, strengthening the body's immune system is one way that can be done to ward off the transmission of this virus and various other diseases. Maintain and improve the body's immune system that can be done, including consuming nutritious foods, exercising, managing stress well, getting enough rest, and consuming supplements containing vitamins A, B, C, E, and zinc to support endurance, for example, supplement drink.

A supplement drink is a health product that contains one or more nutritional substances (vitamins, minerals, and amino acids) or drugs [3]. Although they include food, energy drink products contain substances that are commonly found in drugs with levels below the drug. While this product has medicinal properties but the rules of use do not refer to drugs [3] [4]. Protein is one of the important macronutrients for the body because some of the functions of protein are antibodies and repair and maintenance of body tissues. Food sources of protein are mostly in nuts, for example, soybeans and almonds [5]. Apart from protein, micronutrients also function as a booster for the body's immune system. There are many macronutrients in vegetables, fruit, and medicinal plants. Many fruits and vegetables are processed into drinks, which are then known as multivitamin drinks because of their various vitamin content. Drinking multivitamins from the herbal drink is consumed as part of a diet that can increase antioxidants and improve overall health [6]. Supplemental drinks have been widely circulated, but are more focused on sports supplements, and most of them are isotonic drinks or sports drinks with the main substance of protein. Protein generally comes from milk [7] or whey [8] and soybean/tempeh [9].

Supplements commonly consumed by the elderly are usually supplements that function to support body performance and health, especially during a pandemic. The reasons for a person to take a multivitamins supplement are varied and complex, for example, the risk of increased illnesses such as cancer, infectious diseases, and chronic diseases [10]. However, there is an approach used to explain a certain behavior, namely the Theory of Planned Behavior (TPB). TPB explained that behavior is carried out because each individual has the intention to behave which is influenced by three components, namely consumer attitudes, subjective norms, and behavior control [11]. Previously, several studies have used TPB to predict intention to take a multivitamin supplement. Research conducted by [12] showed that attitudes, subjective norms, and perceptions of behavioral control together influenced the intention to take multivitamin supplements. However, the study [13] showed that subjective norm was a weak predictor of intention to take multivitamin supplements. Therefore, [14] suggests that social influence in the TPB concept

can be expanded to include normative and informational influences.

Consumer attitudes correlate intending to take a multivitamin supplement [15]. Consumers' intention to take multivitamin supplements will arise if consumers have a positive attitude towards taking multivitamin supplements and think that taking them can maintain their health. In addition to consumer attitudes, the intention to take multivitamin supplements is also influenced by social influences, namely normative and informational aspects. The normative aspect shows the tendency of individuals to conform to the expectations of relatives or closest people [16]. Consumers' desire to behave by the expectations of their closest people such as family, friends, and health advisors will influence their intention in the decision-making process to take multivitamin supplements. The information aspect shows the tendency of individuals to receive information about a product by looking for information and observing the behavior of others [17]. This is in line with the degenerative aspects that appear in the elderly. Lifestyle, consumption of food, supplements, medicines, herbs, and medicinal plants also play a role in determining the health of the elderly. The purpose of this study was to describe the level of knowledge, attitudes, and behavior of the elderly in consuming supplement drinks during a pandemic.

## 2. METHOD

This study uses qualitative non-experimental research with descriptive research that describes the phenomenon of knowledge, attitudes, and behavior of consuming supplement drinks, which in principle only shows an objective description of a general condition that is happening now, not looking for a causal relationship. The research design was a survey approach with a questionnaire as a tool for collecting data and information on research subjects, namely are: 1) the knowledge; 2) attitude; and 3) consumption behavior of the supplement drink. The research subjects were the general public as many as 185 people including the elderly from early to late age, namely aged 46-> 70 years. Retrieving data using a questionnaire made with google form with the link <https://forms.gle/7dCCfceX4pLrbuiJ9>. Data collection was carried out on June 15-30, 2020. The collected data were verified and processed using Microsoft Excel 2010, then analyzed descriptively and inferentially.

## 3. RESULT AND DISCUSSION

Sociodemographic characteristics are presented in table 1. The distribution of panelists in this study was the general public who entered the elderly or elderly, be it early, middle or late elderly. The elderly people are aged 65-74 years [18], while those 75 years and over are the final elderly. In line with this statement, WHO classifies

65-75 years as early elderly, 75-85 years as elderly people, and over 85 years as late elderly [19]. Most respondents were women at 66.2%. In this study, the age filtered started from the age of 51 years, with the reason that the researchers wanted to see people who had entered the early pre-elderly in preparing and maintaining their health by consuming supplement drinks.

**Table 1** Distribution of Panelists

No	Respondents	n	F%
1	Gender:		
	- Male	63	33,8%
	- Female	123	66,2%
	Total	186	100
2	Age:		
	- 51-55 years old	27	14,5%
	- 56-60 years old	20	10,8 %
	- 61-65 years old	51	27,4%
	- 66-70 years old	43	23,1%
	- >70 years old	45	24,2%
Total	186	100	
3	Education background:		
	- Primary school	0	0
	- Junior high school	2	1,1%
	- Senior high school	7	3,8%
	- Bachelor degree	54	29%
	- Master degree	70	37,6%
	- Doctoral	53	28,5%
Total	186	100	
4	Occupation:		
	- Retired	3	1,6%
	- Entrepreneur	6	3,2%
	- Employees	14	7,5%
	- Civil servants	163	87,9%
Total	186	100%	

Source: Google form (2020)

If based on the classification of the elderly age limit from the WHO, about 74.6% of the research subjects were included in the category of elderly and the rest were pre-elderly. The latest education of the majority of research subjects is civil servants, namely 87.9% with various levels of education, starting from strata 1 to strata 3. In Table II, data is presented regarding the habits of respondents in consuming supplement drinks.

**Table 2** Distribution of Respondents Based on Habits of Consuming Supplemental Drinks

Items	Category	N	F%
Consuming supplement/healthy drink	Yes	129	69,4
	No	57	30,6
The form of a supplement that is consumed	The powder, then its brewed	14	7,5
	Liquid	43	23,1
	Jelly	2	1,1
	Capsule	70	37,7
	Never	57	30,6
The length of consuming a supplement/healthy	< 1 year	57	30,6
	1-3 years	36	19,4
	4-6 years	16	8,6

Items	Category	N	F%
drink	7-9 years	10	5,4
	>10 years	10	5,4
	Never	57	30,6
The reason to consume a supplement	Refresh the body	22	11,8
	Increase stamina and activity	89	47,8
	Eliminates drowsiness	1	0,6
	In the treatment period	17	9,2
	Never	57	30,6

Based on interviews using a google form, it was found that 69.4% of respondents consumed supplement drinks. Supplements that take various forms, such as powder which is then brewed, a liquid that is immediately consumed, jelly drink form, and capsules, however, most respondents consumed supplement drinks in capsule form, namely 37.7%, and liquid form, namely 23.1%. Most of the respondents' reasons for consuming supplement drinks were to increase stamina, namely 47.8% and to refresh the body by 11.8%. However, some respondents consumed supplement drinks for treatment, namely as much as 9.2%. Respondents who consumed supplemental drinks were mostly just > 1 year old, which was 30.6%. This could be in line with the outbreak of Covid-19 which attacks the human immune system, especially the elderly. So that to maintain, help, and / improve their immune system they consume supplement drinks.

**1.1. Description of Knowledge Level of the Elderly in Consuming Supplemental Drinks**

Based on the results of the recapitulation of the questionnaire in Table III, it was found that most of the respondents had good knowledge about supplement drinks, namely 31.7% each had good and very good categories. While the remaining 12.4% is in enough category and 10.2 is included in the poor criteria. This data can be said that the research subject already knows about the meaning, benefits, and criteria of supplement drinks so that they have a good picture of knowledge.

**Table 3** Results of the Knowledge Level of the Elderly in Consuming Supplemental Drinks

No	Criteria	Score	F	%
1	Bad	>50	19	10,2
2	Less	51 - 60	0	0
3	Enough	61 - 70	23	12,4
4	Good	71 - 90	59	31,7
5	Very good	91 - 100	59	31,7
<b>Total</b>			<b>186</b>	<b>100</b>

The knowledge of the research subjects regarding supplement drinks according to their education level, the majority of which came from undergraduate education (presented in Table I), S1 was 29%; S2 as much as 37.6%; and S3 as much as 8.5%. When viewed from an educational background, it is expected that a good level of knowledge about supplement drinks is expected. When analyzed from the existing question items, the lowest score for the items in the seventh statement, namely the body needs fat and taurine to boost the immune system. Of the total respondents, only 38.4% answered correctly. Apart from protein, fat does have a role in maintaining the immune system but compared to fat, protein plays a more important role in maintaining and increasing body immunity.

Knowledge is a very important domain for the formation of one's actions (over behavior) because from experience and research it turns out that behavior based on knowledge will be more lasting (long-lasting) than behavior that is not based on knowledge. Conversely, if the behavior is not based on knowledge and awareness, it will not last long [20]. Nutritional knowledge is expected to become a basic foundation for consumers in deciding whether or not to consume consumers, determining the type and amount of supplement uptake according to their body condition. This is because the practice of food consumption is the result of the interaction of nutritional knowledge and attitudes towards food [21] [22].

**1.2. The Attitude of the Elderly Community in Consuming Supplemental Drinks**

Attitude is a psychological term that deals with perception and behavior or a tendency to react to a stimulant or situation at hand. Attitudes are actions based on beliefs based on existing norms [23], actions that humans will do usually depend on what the problem is and are truly under the conditions. The following is a summary of the attitudes of the elderly towards supplement consumption.

**Table 4** Results of the Attitudes of the Elderly in Consuming Supplement

No	Statements	Positive		Negative	
		F	F%	F	F%
1	Daily food should contain good and balanced nutrition	195	100	0	0
2	The elderly should be more selective in choosing foods and combined with healthy habits such as consuming supplement drink	154	78,97	41	21,03
3	The change of lifestyle in new normal era should be followed by changes in diet by	132	67,70	63	32,30

No	Statements	Positive		Negative	
		F	F%	F	F%
	taking supplement such as healthy drink				
4	Supplement are needed to support the elderly health in new normal era	153	78,46	42	21,54
5	The habit of consuming large amounts of supplement drink can cause nutrional problems	152	77,9	43	22,1

Based on the research results, it was found that 80.6% of the respondents had a good and positive attitude regarding the consumption of supplement drinks. Someone who has good knowledge is likely to behave well and even behave well too [24]. A person's attitude towards an object shows that person's knowledge of the object in question. In Table I regarding knowledge, as many as 63.4% have very good and good knowledge, so the attitude they show is a positive attitude that supports the consumption of supplement drinks. Meanwhile, the remaining 22.1% shows a negative attitude towards the consumption of supplement drinks, especially in the third statement, namely that changes in lifestyle in the new normal era must be followed by changes in healthy eating patterns, one of which is by consuming supplements. This indicates that 32.3% of respondents thought that supplement drinking was insufficient or not important for maintaining health or immunity, especially during the pandemic. According to him, consuming healthy foods by applying the B2SA pattern is enough to maintain immunity, so that no additional supplements are needed, this is in line with the opinion [25] which states that consuming foods with the B2SA pattern will maintain a healthy body.

**1.3. The Behavior of the Elderly Community in Consuming Supplements**

Behavior is an activity or activity of an individual [20]. According to Robert Kwik [26] behavior is the action or deed of an organism that can be observed and studied. According to Skinner [27], the behavior is the interaction between an object or stimulus with a response. Behavior is an individual activity that is formed due to stimuli and responses and can be observed and studied. A person's behavior in consuming food or drink can affect the health status of that individual. Consumption behavior can be observed and studied why they consume the food or drink related to its effects and benefits, for example on workers who consume supplements.

**Table 5** Results of Community Behavior in Supplement Consumption

No	Statements	Always	Occasionally	Never
1	I drink a supplement/healthy drink at least one time a day	21,60%	56,20%	22,20%
2	I buy a supplement/healthy drink by checking/looking at the ingredients first	65,60%	14,40%	20%
3	Price is my consideration in buying supplements/healthy drink	23,10%	51,80%	25,10%
		Yes	No	
4	I consume the supplements/healthy drink on my own, without the influence of others	69,20%	30,80%	
5	The Covid-19 virus made me consume a supplement/healthy drink	50,80%	49,20%	
6	I prefer herbal drinks as a supplement rather than a chemical one, even though they are food grade	87,10%	12,90%	

From Table 5 it can be seen about the behavior of the elderly in consuming supplement drinks. From the statement items that have been compiled, it can be seen in point 1 regarding the frequency of consuming supplements as much as 21.6% indicating that they always take supplements, as much as 56.2% sometimes take supplements and 22.2% never take supplements. The decision to take supplements is a reflection of one's knowledge and attitudes because they better understand the condition and needs of their bodies. The frequency of taking supplements apart from being based on knowledge is also influenced by the disciplinary attitude of the person. In the second point of the statement regarding the composition of the material being considered, it can be seen that 65.6% of the panelists always look at the composition of the material. This can be done to ensure that the food being eaten is safe and does not cause anxiety. For example, what is seen is the content of sodium, preservatives, or to check whether the ingredients used are classified as halal. However, there were also 14.4% of panelists who did not consider the ingredients when buying supplements. This could be because they prioritize the efficacy or function of these supplements.

There are many supplements for the elderly on the market, mostly in the form of caplets and milk [28] with

varying prices [29], but the prices are relatively high. This makes 23.1% of panelists consider price in buying and consuming a supplement, but 51.8% of panelists do not consider price when buying supplements. The decision to consume a product is influenced by the purchasing power and the level of a person's economy/welfare [30]. When analyzed from Table I regarding the characteristics of the panelists, most of the panelists have a fairly good educational background and a good job too. This condition can influence the decision to consume supplements without considering the price.

In the sixth statement, 87.1% of panelists prefer supplements that come from herbs or natural ingredients over supplements made from chemicals even though they are safe for consumption. This shows that people have started to return to a healthy lifestyle by preferring natural ingredients. This is in line with the opinion [31] which states that the use of medicinal plants (jamu) increases with age. The type of herbal medicine that is widely consumed, for example, those who have complaints of back pain, is the jamu pegel linu. [32] stated that the elderly suffering from joint and muscle pain can take advantage of traditional medicine as a substitute for modern medicine.

#### 4. CONCLUSION

The level of public knowledge of supplement drinks is included in good and very good categories, which are influenced by a good educational background. In attitude, 80.6% of respondents have a good and positive attitude regarding the consumption of supplement drinks. Meanwhile, the respondent's behavior towards the consumption of supplement drinks shows a positive tendency which is indicated by supporting the consumption of supplement drinks as a support for health and immunity.

#### REFERENCES

- [1] [www.covid19.go.id](http://www.covid19.go.id)
- [2] [www.bbc.com](http://www.bbc.com), "Update virus corona: Peta dan infografis terkait pasien terinfeksi, meninggal dan sembuh di Indonesia dan dunia (May 17 2020)", [Online], <https://www.bbc.com/indonesia/indonesia-51850113>, accessed on May 18 2020].
- [3] M. Septi, R. S Dewi and Y. Yolanda, "Pengetahuan masyarakat tentang suplemen minuman berenergi terhadap risiko penyakit ginjal kronik di Kelurahan Simpang Baru Kecamatan Tampan Pekanbaru", *J. Penelit. Farmasi Indonesia*, vol. 8 (2), 2019.

- [4] Y. Yuliarti, "Food supplement, panduan mengonsumsi makanan tambahan untuk kesehatan anda", Yogyakarta: Banyu Media, 2008.
- [5] D. Damayanti, "The innovation of Soybean Sprouts-Substituted Almond Milk as the source of vegetable protein", *J. Pangan Agroindustri*, vol. 6 (3), pp. 70-77, July 2018.
- [6] A. Chandrasekara and F. Shahidi, "Herbal beverages: Bioactive compounds and their role in disease risk reduction - A review", *J. Tradit. Complement. Med.*, vol. 8, pp. 451-458, 2018.
- [7] S. F. Gilson, M. J. Saunders, C. W. Moran, R. W. Moore, C. J. Womack, and M. K. Todd, "Effects of chocolate milk consumption on markers of muscle recovery following soccer training: a randomized cross-over study", *J. Int. Soc. Sports Nutrition*, vol. 7 (1), p. 19, 2010.
- [8] J. D. Buckley, R. L. Thomson, A. M. Coates, P. R. Howe, M. O. Denichilo, and M. K. Rowney, "Supplementation with a whey protein hydrolysate enhances recovery of muscle force-generating following eccentric exercise", *J. Sci. Med. Sport*, vol. 13 (1), pp. 178-81, 2010.
- [9] M. Jauhari, A. Sulaeman, and H. Riyadi, "Pengembangan formula minuman olahraga berbasis tempe untuk pemulihan kerusakan otot", *J. Agritech*, vol. 34 (3), 2014.
- [10] F. Fatmah, "Respons imunitas yang rendah pada tubuh manusia usia lanjut", *Makara J. Health Res.*, vol. 10 (1), pp. 47-53, 2006.
- [11] S. Siahaan, S. Ujang, and N. Dodik, "Faktor-faktor yang memengaruhi niat menggunakan kecap local", *J. Ilmu Keluarga & Konsumen*, vol. 8 (2), pp. 125-132, 2015.
- [12] H. Petraszko, "Theory of planned behavior to predict multivitamin/mineral use", 2013, Thesis unpublished.
- [13] M. Zychowicz, and M. Pilska, "Psychosocial determinants of using vitamin and mineral supplements among students", *Polish J. Food and Nutrition Sci.*, vol. 15 (56), pp. 167-170, 2006.
- [14] T. F. Mangleburg, P.M. Willison, and T. Bristol, "Shopping with friends and teens' susceptibility to peer influence", *J. Retailing*, vol. 80 (2), pp. 101-116, 2004.
- [15] S. Yap, N. A. Noor, R. Marshall, and K. Liew, "Promoting preventive health behaviour among young Malaysian consumers: toward an integrated conceptual framework", *Australasian Marketing J.*, vol. 22 (3), pp. 268-278, 2014.
- [16] N. Ozer, "The effect of social media on consumer buying decision process", 2012, Thesis unpublished.
- [17] D. H. Silvera, A.M. Lavack, and F. Kropp, "Impulse buying: the role of affect, social influence, and wellbeing", *J. Consumer Marketing*, vol. 25 (1), pp. 23-33, 2008.
- [18] O. Hajime, H. Ito, T. Suzuki, A. Araki, T. Hosoi, and M. Sawabe, "Reviewing the definition of elderly", 2017.
- [19] E. Unal and A. Ozdemir, "Old age and aging. recent studies in health sciences, Publisher: ST. Kliment Ohridski University Press Sofia, pp. 414-424, 2019.
- [20] S. Notoatmodjo, "Promosi kesehatan dan ilmu perilaku", Jakarta: Rineka Cipta, 2007.
- [21] P. G. Nita, "Promosi gizi terhadap sikap gemar makan ikan pada anak usia sekolah", *J. Health Education*, vol. 3 (1), 2018.
- [22] A. Anani, "Effect of nutrition education on knowledge, attitude and behavior in consuming isoflavones rich food among female students with pre-menstrual syndrome", *J. Amerta Nutrition*, pp. 136-146, 2018.
- [23] S. Suharyat, "Hubungan antara sikap, minat, dan perilaku manusia", *J. Region*, vol. 1 (3), pp. 1-19, 2009.
- [24] S. Rismaida, "Hubungan pengetahuan dengan tindakan ibu terhadap terjadinya biang keringat pada bayi 0-1 tahun di Desa Lama Kecamatan Hampan Perak Kabupaten Deli Serdang Tahun 2019", *J. Maternitas Kebidanan*, vol. 4 (2), pp. 93-101, 2019.
- [25] H. Handayani, "Pelatihan pembuatan Buridor (Bubur Instan Daun Kelor) Sebagai MP-ASI B2SA di Desa Tanjung Kecamatan Mangli Kabupaten Jember", *J. Pengabdian Masyarakat: J-DINAMIKA*, vol. 4 (1), 2019.
- [26] W. I. Mubarak, B. A. Santoso, and K. P. S. Rozikin, "Ilmu keperawatan komunitas 2", Jakarta: CV. Sagung Seto, 2006.
- [27] S. Sunaryo, "Psikologi untuk keperawatan", Jakarta: EGC, 2004.
- [28] A. Endrinikapoulos, A. Candra, H. Wijayanti, and E. Noer, "Pengaruh suplementasi zat besi

- terhadap fungsi kognitif lansia”, *J. Nutrition College*, vol. 9 (2), pp. 134-146, 2020.
- [29] S. Heri, Y. Herawati, and S. Asmarani, “Pengaruh harga dan kualitas produk terhadap keputusan pembelian suplemen kesehatan K-Omega Squa (studi kasus pada stokis PT K-LINK Nusantara Cabang Plaju Palembang)”, *J. Ilmiah Orasi Bisnis*, vol. 13, pp. 70-85, 2015.
- [30] W. Khamo, “Pengaruh status sosial ekonomi orang tua dan kelompok teman sebaya terhadap perilaku konsumen siswa, *J. Manajemen dan Bisnis*”, vol. 6 (2), pp. 83-97, 2018.
- [31] R. Diana, “Life style, supplement consumption, traditional medicine (“Jamu”), medical plants, and health status of Elderly at Bogor District”, *J. Gizi dan Pangan*, vol. 3(2), pp. 118 – 123, 2008.
- [32] L. Handayani, “Pemanfaatan obat tradisional untuk kesehatan lansia”, *J. Kedokteran dan Farmasi Medika*, vol. 11, pp. 736-738, 2002.