Public awareness and perception of nanotechnology in Malaysia

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Nanoscience and the concept of nanotechnology have been around since the early 20th century. Since then, several high-impact applications of nanotechnology were seen in electronics, biomedicine, catalysts and aeronautics. Ultimately, it will influence our economy, society and environment. Studies have revealed that about 50% of the public are aware of nanotechnology, although numerous nanotechnology applications are known to have the potential to be applied in many industries and are currently available in the market. This study found that the level of awareness of nanotechnology among Malaysians is rather low in comparison to the developed countries. Despite the lack of knowledge about nanotechnology among the public in general, existing nanotechnology product users had basic knowledge of nanotechnology, considered that the benefits exceeded the risks and were willing to buy nanotechnology-based products. As knowledge was the most important factor found in this study, educational advertising through the mass media could become a tool to educate and increase awareness among Malaysians. Educating consumers to provide fundamental knowledge of nanotechnology should be the responsibility of the captains of industries, nongovernmental organizations and the Malaysian government alike.

1. Introduction

Nanoscience and the concept of nanotechnology[1] have been around since the early 20th century.[2] Since then, several high-impact applications of nanotechnology were seen in electronics, biomedicine, catalysts and aeronautics. Ultimately, it will influence our economy,

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1 Ramsden, J.J. Towards a concept system for nanotechnology. *Nanotechnology Perceptions* **5** (2009) 187–189.
2 Whatmore, R.W. Nanotechnology—should we be worried? *Nanotechnology Perceptions* **1** (2005) 67–77.

Nanotechnology Perceptions **9** (2013) 198–210
Received 30 October 2013

society and environment.[3] Nanotechnology is "the ability to control and restructure matter at the atomic and molecular levels in the range of approximately 1–100 nm with the aim of creating or constructing materials, devices and systems with fundamentally new properties and functions".[4]

The increase in knowledge was not reflected in the aversion of risks associated with nanotechnology.[5] Despite the high number of Science Citation Index (SCI) publications in nanotechnology, longitudinal surveys conducted in the USA, the UK and Europe highlighted that only about 50% of the respondents showed some understanding of nanotechnology.[6]

It was found that about 44% of people interviewed were unsure about the perceived consequences of nanotechnology, although the majority of the respondents believed that the benefits are greater than the risks.

In Germany, the number of adults who know something about nanotechnology increased from 20% in 2004 to 50% in 2008. Respondents could identify some examples of nanotechnology like "miniaturization" and "surface treatment" but "spontaneously developed terrifying images" when asked about the risk.[7] A public poll conducted by the Woodrow Wilson International Centre for Scholars categorized the few groups that had heard of or knew about nanotechnology. They were men between 18 to 49 years old, college graduates and people from higher income groups. The result of this poll also revealed that men (66%) had better knowledge about the benefits and risks of nanotechnology than women (48%).[8] A poll on nanotechnology in the food industry highlighted that Americans were more likely to buy food in nanotechnology-enhanced containers (12%) compared to the actual food enhanced with nanotechnology (7%). Nevertheless, those who had the intention to buy both nanotechnology products said that they needed more information pertaining to the health risks before making any decision to purchase. A person who had some knowledge about nanotechnology was more likely to use nanotechnology products.[9]

Notwithstanding the above findings, there was consensus on the relationship between public knowledge of nanotechnology and public beliefs that the benefits of nanotechnology are greater than the risks.[10] Hence, increasing knowledge of nanotechnology among the public is essential. Nanotechnology has unlocked new applications to various industries, which have

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[3] Ramsden, J.J. The music of the nanospheres. *Nanotechnology Perceptions* **1** (2005) 53–64.

[4] Roco, M. The long view of nanotechnology development. *Journal of Nanoparticle Research* **13** (2011) 427–445.

[5] Satterfield, T., Kandlikar, M., Beaudrie, C.E.H., Conti, J. and Harthorn, B.H. Anticipating the perceived risk of nanotechnologies. *Nature Nanotechnology* **4** (2009) 752–758.

[6] *Ibid.*,[4] p. 429.

[7] Zimmer, R., Hertel, R. and Bol, G. (eds). *Public perception about nanotechnology: Representative survey and basic morphological-psychological study*. Berlin, BfR Wissenchaft (2008).

[8] Zawila, J. and McCarter, S. *Public Awareness of Nanotechnology Grows, but Majority Unaware* (2006). Retrieved from http://www.nanonewsboard.com/phpBB3/viewtopic.ph?f=4%t=31 on 5 December 2012.

[9] McCarter, S. Poll reveals public awareness of nanotech stuck at low level. *EurakAlert* (2007). Retrieved from http://www.eurekalert.org/pub_releases/2007-09/poen-prp092007.php (accessed on 5 December 2012).

[10] Heintz, M. E. *New Poll Results on Public Awareness of Nanotechnology. Nanotechnology Law Report* (2008). Retrieved from http://nanolawreport.com/2008/10/articles/new-poll-results-on-public-awareness-of-nanotechnology.html on 21 November 2012.

enabled the introduction of new products.[11] Many scientific publications have articulated nanotechnology breakthroughs, such as nanowires that could boost battery capacity by about ten times in comparison to the current carbon anodes.[12] A lithium-ion battery using a nanostructured electrode could potentially charge up to 90% of its maximum capacity in two minutes.[13] In the pharmaceutical and healthcare industries, a nanostructured drug could deliver ultraprecise doses to counter diseases. Additionally, nanoscale coatings could assist implants by improving bioactivity and biocompatibility.

In reality, nanotechnology has been part of the food processing and agriculture industry for centuries, since many food structures naturally exist in the nanoscale. Apart from developing new food ingredients, nanotechnology can also be used to create new forms of food packages and food quality detection tools (measurement and detection systems). For instance, nanotechnology is now applied to enhance the technical properties of packaging materials, to enable controlled and timed release of nutrients for food and fertilizers as well as to deliver increased absorption and bioavailability of the food products. These applications could change the way food is produced.[14]

Other potential applications include nanoencapsulated materials that act as a protective barriers for food ingredients, masking certain flavours and tastes. Nanosized additives could be used to improve bioavailability enhancing the absorption of specific nutrients by the human body. In agricultural production, nanosensors could be utilized to detect soil condition and nutrient content, providing quantifiable monitoring to farmers.[15] Nanobubbles have been used for disinfection and sterilizing of water as well as reducing smell in water tanks.[15, 16] Carbon nanotubes assembled with nanoporous ceramics and magnetic nanoparticles could be used to eradicate bacteria, other waterborne pathogens and heavy metal elements.[17] However, there are also risks associated with these applications, especially regarding the impact on the human body. The size of nanomaterials is such that they may be able to penetrate tissue cells and potentially alter tissue metabolism. Nanocomposites used in food packaging might easily leach nano-objects, which then migrate to the foodstuffs, resulting in ingestion of the nano-objects.[18]

Nevertheless, public awareness of the significant contribution of nanotechnology to society has been very low. The case in point is Malaysia. This is not surprising as a survey

[11] Goddard, W.A., Brenner, D., Lyshevski, S.E. and Iafrate, G.J. *Handbook of Nanoscience, Engineering and Technology*. Boca Raton: CRC Press (2007).
[12] Chan, C.K., Peng, H., Liu, G., McIlwrath, K., Zhang, X.F., Huggins, R.A. and Cui, Y. High-performance lithium battery anodes using silicon nanowires. *Nature Nanotechnology* **3** (2008) 31–35.
[13] Stein, A. Energy storage: batteries take charge. *Nature Nanotechnology* **6** (2011) 262–263.
[14] Chaudhry, Q. and Castle, L. Food applications of nanotechnologies: An overview of opportunities and challenges for developing countries. *Trends in Food Science & Technology* **22** (2011) 595–603.
[15] Sastry, R.K., Rashmi, H.B., Rao, N.H. and Ilyas, S.M. Integrating nanotechnology into agri-food systems research in India: A conceptual framework. *Technological Forecasting & Social Change* **77** (2010) 639–648.
[16] Chiba, K. and Takahashi, M. *Fantastic Properties of Nano-Bubbles* (2012). Retrieved from http://staff.aist.go.jp/m.taka/nano-bubble.pdf on15 March 2012.
[17] Chaudhry, Q., Scotter, M., Blackburn, J., Ross, B., Boxall, A., Castle, L., Aitken, R. and Watkins, R. Applications and implications of nanotechnologies for the food sector. *Food Additives & Contaminants* **25** (2008) 241–258.
[18] Gruere, G., Narrod, C. and Abbott, L. Agriculture, food and water nanotechnologies for the poor: opportunities and constraints. *IFPRI Policy Brief No19* (2011). International Food Policy Research Institute (IFPRI).

conducted under the patronage of the Royal Society and the Royal Academy of Engineering in 2004 highlighted that few people have any clear opinions about nanotechnology.[19] It is generally perceived as research and development in certain areas but people seem to have little knowledge of the products available in the market.

This study aims at evaluating the level of awareness and knowledge of nanotechnology in food-related products among Malaysians. The willingness to buy and appropriately use nano-based products was also assessed. The study will also highlight the perception of the public towards the benefits and risks of nanotechnology applications. Finally, the general perceptions of users or buyers towards products incorporating nanotechnology were examined.

2. Methods

A survey was carried out at the Malaysia Agriculture, Horticulture and Agrotourism Exhibition in 2012 (MAHA 2012). A total of 309 respondents were randomly selected for this study. MAHA attracted 2.66 million visitors during the 10-day event.[20] The visitors were from various states in Malaysia and from various socio-economic backgrounds. Respondents were asked to complete a questionnaire provided with both English and Malay text.

A nonparametric statistical analysis was used in this study, since the Kolmogorov–Smirnov test statistic was found to be significant ($D = 0.122$). A descriptive analysis was used to analyse the frequency and percentage value of variables according to socio-economic and demographic profiles. The possibility of a significant relationship between socio-economic variables and nanotechnology-related questions was tested using chi-squared analysis.[21]

3. Results and discussion

3.1 Profile of respondents

Tables 1 and 2 capture the age profile and socio-economic backgrounds of the respondents. There was a close balance between the male and female respondents who participated in this survey and the majority were in the age groups 18–27 years (34.7%) and 28–37 years (34.3%). Note that the oldest age group, from age 58 and above, may have been underrepresented among respondents. Nevertheless, this is of little concern because the survey was not purposely targeted to those in the "baby boomer" generation. More than 60% of the respondents were educated at college or university level and only 25% of them had been using nanotechnology-based products. Most of the users were male and more than 18 years old (Table 2). The nonusers were scattered throughout the age groups; nonetheless, chi-squared analysis indicated a significant association of nanotechnology users with particular age groups (Table 3). Although only 25% were ostensibly using nanotechnology-based products, the actual nanotechnology users could be more numerous than that since respondents might not have been aware that they already were nanotechnology-based product users.

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[19] www.http://royalsociety.org/policy/publications/2004/nanoscience-nanotechnologies/

[20] Marditech Corp. *MAHA 2012—About Us*. Retrieved from http://www.maha.gov.my/2012/about-maha2012.html on 20 November 2012.

[21] Rosner, B. *Fundamentals of Biostatistics* (7th edn). Boston: Brooks/Cole (2011).

Table 1. Socio-economic profile of respondents.

	Frequency (%)[a]
Gender	
Male	51.5
Female	48.5
Age	
<18	1.9
18–27	34.7
28–37	34.3
38–47	15.5
48–57	12.0
>58	1.6
Highest education level	
Primary school	1.3
Secondary school	33.3
University/college	65.4
Using nanotechnology-based products?	
Yes	25.0
No	75.0

[a] The total sample size was 309.

Table 2. Nanotechnology-based product users according to socio-economic profile.

	n	Nanotechnology-based product users?	
		Yes (%)	No (%)
Gender			
Male	159	27.7	72.3
Female	150	22.0	78.0
Age			
<18	6	0.0	100
18–27	107	15.9	84.1
28–37	106	33.0	67.0
38–47	48	22.9	77.1
48–57	37	29.7	70.3
>58	5	60	40
Highest education level			
Primary school	4	0.0	100
Secondary school	103	25.2	74.8
University/college	202	25.2	74.8

Table 3. Chi-squared values derived from Table 2.

Socio-economic variable	χ^2
Gender	1.328 ^{ns}
Age	14.222 **
Education level	1.345 ^{ns}

** Significant at $P < 0.05$; ns = not significant.

3.2 Types of nanotechnology-based product purchases

The study revealed that nano-based food products were ranked first among nanotechnology products purchased by the respondents (Table 4). It was quite a surprising result since there are more risks from using them compared to nonfood products.[22] Among the food products were milk, chocolate, food supplements and beverages. The respondents believed that the products were nano-based if the word "nano" appeared on the product labelling.

Cosmetic products incorporating nanomaterials, including facial wash as well as body and facial creams, were ranked second. There were also automotive products such as car polish and engine oil that were bought by the respondents. These buying patterns indicate that although people did not have much information about nanotechnology and nanotechnology products, they still purchase the products since they are readily available in the market. The other types of products purchased by respondents were medicine, water filter/purification aids, food/drink containers, clothes, electronics, detergents, fertilizers and health products. As revealed by Table 3, most nanotechnology-based product users were older people (who purchased osteoporosis-prevention milk).

Table 4. Types of nanotechnology-based products purchased by respondents.

Product type	Percentage[a]
Food	29.3
Cosmetics	24.0
Automotive	12.0
Medicine	10.7
Water filter/purification	10.7
Food/drink containers	4.0
Clothes	2.7
Electronics	2.7
Detergents	1.3
Fertilizers	1.3
Health	1.3

[a] Sample size was 75.

3.3 Awareness and knowledge about nanotechnology

The results from questionnaires to gauge respondents' awareness and knowledge about nanotechnology are given in Table 5. More than 78% of the respondents indicated that they have some information about nanotechnology but the remaining 22% were not aware at all. The survey revealed that the majority of the respondents (60%) correctly thought that a nanosized particle is smaller than a microsized one, and that nanotechnology has been widely used in the electronics and pharmaceutical industries. This finding implied that the level of understanding or awareness among the Malaysian public of nanotechnology is quite commendable. Chi-squared analyses (Table 7) showed that respondents with higher education have better knowledge of nanotechnology. This finding is in accordance with a study that found a significant relationship between the level of education and nanotechnology knowledge.[23]

[22] *Ibid.*,[14] p. 601.
[23] Zawila, J. and McCarter, S. *Public Awareness of Nanotechnology Grows, but Majority Unaware* (2006). Retrieved from http://www.nanonewsboard.com/phpBB3/viewtopic.ph?f=4%t=31 on 5 December 2012.

Table 5. Level of awareness and knowledge of nanotechnology.

Question	Percentage [a]
1. How much do you know about nanotechnology?	
Nothing at all	22
Just a little	36.6
Some	39.5
A lot	1.9
2. Is nano-size is smaller than micro?	
Yes	61.8
No	6.8
Don't know	31.4
3. Do you agree that nanotechnology has been widely used in the electronics and pharmaceutical industries?	
Yes	62.1
No	2.6
Don't know	35.3

[a] Sample size was 309.

Table 6. Level of knowledge about an aspect of nanotechnology according to socio-economic profile.

	n	Is nano-size smaller than micro?		
		Yes (%)	No (%)	Don't know (%)
Gender				
Male	159	62.9	5.0	32.1
Female	150	60.7	8.7	30.7
Age				
<18	6	33.3	0.0	66.7
18–27	107	59.8	10.3	29.9
28–37	106	65.1	7.5	27.4
38–47	48	60.4	2.1	37.5
48–57	37	64.9	2.7	32.4
>58	5	60.0	40.0	0.0
Highest education				
Primary school	4	25.0	25.0	50.0
Secondary school	103	53.4	4.9	41.7
University/college	202	66.8	7.4	25.7

Table 7. Chi-squared values derived from Table 6.

Socio-economic variable	χ^2
Gender	1.612 [ns]
Age	10.047 [ns]
Education level	11.533 [**]

** Significant at $P < 0.05$; ns = not significant.

Table 8. Level of knowledge about another aspect of nanotechnology according to socio-economic profile.

	n	Nanotechnology has been widely used in electronics and pharmaceuticals		
		Yes (%)	No (%)	Don't know (%)
Gender				
Male	159	59.7	3.8	36.5
Female	150	64.7	1.3	34.0
Age				
<18	6	50.0	0.0	50.0
18–27	107	60.7	3.7	35.5
28–37	106	65.1	2.8	32.1
38–47	48	62.5	0.0	37.5
48–57	37	62.2	2.7	35.1
>58	5	40.0	0.0	60.0
Highest education				
Primary school	4	50.0	0.0	50.0
Secondary school	103	50.5	3.9	45.6
University/college	202	68.3	2.0	29.7

Table 9. Chi-squared values derived from Table 8.

Socio-economic variable	χ^2
Gender	2.210 ^{ns}
Age	4.431 ^{ns}
Education level	9.802 **

** Significant at $P < 0.05$; ns = not significant.

In order to gain further insight into the awareness of nanotechnology, the respondents were statistically grouped into two. The first group included those who responded "nothing at all" and "just a little" to Question 1 (Table 5) while the second group consisted of those who answered "some" and "a lot". It may be summarized that Malaysians who know about nanotechnology account for 41.4% (Table 10). The statistic confirms that the awareness level of nanotechnology among Malaysians is low.

Table 10. Regrouped response to Question 1 (Table 5).

How much do you know about nanotechnology?	Frequency (%)
Little or nothing	58.6
Something or a lot	41.4

In addition, the in-depth analysis of those group showed in Table 11 presented the actual number of people who said know "some" or "a lot" about nanotechnology and at the same time answered correctly on both second and third questions. This indicated that 99 out of 309 persons, which is equivalent to 32% of the respondents, could be referred as having a level of awareness of nanotechnology, which is lower than the number showed previously. Different

education levels also showed significant association with the regrouped response concerning nanotechnology knowledge (Table 12).

Table 11. Level of awareness—distinguishing those who answered "yes" for Question 2 and 3 (Table 5).

Level of awareness (Question 1)	Answered "yes" to both Questions 2 and 3	Either Question 2 or 3 was answered "no"
Some	94	28
A lot	5	1

Table 12. Level of knowledge according to socio-economic variables.

Socio-economic variable	*n*	How much do you know about nanotechnology? (%)	
		Little or nothing	Something or a lot
Gender			
Male	159	57.9	42.1
Female	150	59.3	40.7
Age			
<18	6	50.0	50.0
18–27	107	58.9	41.1
28–37	106	56.6	43.4
38–47	48	64.6	35.4
48–57	37	56.8	43.2
>58	5	60.0	40.0
Highest education			
Primary school	4	50.0	50.0
Secondary school	103	30.1	69.9
University/college	202	47.0	53.0

Note: Values in the table are row percentages.

Table 13. Chi-squared values derived from Table 12.

Socio-economic variable	χ^2
Gender	0.793^{ns}
Age	1.124^{ns}
Education level	8.183^{**}

** Significant at $P < 0.05$; ns = not significant.

3.4 Perception of nanotechnology

The respondents were also asked to indicate their agreement or disagreement with a general statement about nanotechnology. The result showed that most of the people (79%) agree that nanotechnology is beneficial to them as it could modify foods based on nutritional needs or tastes, despite some risks involved (Table 14). However, the results from the chi-squared test showed that none of the socio-economic variables are associated with the response concerning perception of the function and health effects of nanotechnology (Table 15).

Table 14. Perception of function and health effects of nanotechnology.

Statement	Agree	Disagree
Nanotechnology allows consumers to modify foods depending on their own nutritional needs or tastes, and functions as "active" cleaning surfaces for food products. Nevertheless, nanosizing may introduce insoluble, indigestible materials that can lead to the alteration of tissue distribution.	78.8	21.1

Table 15. Chi-squared values derived from Table 14 (the perception of nanotechnology).

Socio-economic variable	χ^2
Gender	1.043 ^{ns}
Age	1.234 ^{ns}
Education level	0.199 ^{ns}

ns = not significant.

The respondents were asked to judge the benefits and risks of nanotechnology and the results are illustrated in Table 16. Nearly half of them (48%) had no idea about the benefits and risks of nanotechnology, while close to 12% had the perception that the risks outweigh the benefits. The balance (40%) of the respondents either believed that there are equal benefits and risks or that benefits outweigh risks. This finding shows that the nano-based product producers have a greater chance in marketing their products in this country since Malaysians generally perceived that nanotechnology's benefits outweigh the risks. Producers could leverage this opportunity if they can ensure the consumer that there are no negative side effects in nano-based products. At the same time they can focus their marketing efforts to instil greater awareness of the benefits of nanotechnology, since a quite large proportion of Malaysians generally had no preconceived ideas about its benefits and risks. The producers should consider this situation as an opportunity, if they can convince consumers that no negative side effects are associated with nano-based products.

Table 16. Perception of benefit and risks.

Benefits *vs* risks	Percentage (n = 309)
No idea	47.9
Risks outweigh benefits	11.7
Benefits and risks will be about equal	21.0
Benefits outweigh risks	19.4

There is no significant difference among socio-economic variables for the perception of benefits and risks (Table 17). However, people who have better knowledge of nanotechnology think that the benefits are greater than the risks (Table 18). This finding is in accordance with the results from polls on public awareness of nanotechnology.[24]

[24] *Ibid.* [10]

Table 17. Perception of benefits and risks by socio-economic variables and level of knowledge.

Variables	*n*	Benefits *vs* risks (%)			
		No idea	Risks outweigh benefits	Benefits and risks are about equal	Benefits outweigh risks
Gender					
Male	159	49.7	12.0	17.0	21.3
Female	150	46.0	11.3	25.4	17.3
Age					
<18	6	50.0	0.0	33.3	16.7
18–27	107	43.0	14.0	25.2	17.8
28–37	106	47.1	10.4	21.7	20.8
38–47	48	62.5	8.3	10.4	18.8
48–57	37	43.3	16.2	18.9	21.6
>58	5	60.0	0.0	20.0	20.0
Highest education					
Primary school	4	50.0	25.0	25.0	0.0
Secondary school	103	53.4	11.7	15.5	19.4
University/college	202	45.0	11.4	23.8	19.8
Level of knowledge					
Little or nothing		63.5	8.8	16.0	11.6
Some or a lot		25.8	15.6	28.1	30.5

Note: Values in the table are row percentages.

Table 18. Chi-squared values derived from Table 17 (the perception of benefits and risks).

Variables	χ^2
Gender	3.456 ^{ns}
Age	10.454 ^{ns}
Education level	4.638 ^{ns}
Level of knowledge	44.242 ***

*** Significant at $P < 0.01$; ns = not significant.

3.5 Willingness to buy

The statistics show that there are more people willing to buy food and food containers enhanced with nanotechnology (62% and 67%, respectively) as illustrated in Table 19. Perhaps this could give a positive indication to the food industry regarding acceptance and the willingness of Malaysians to buy food products incorporating nanotechnology. Gender is the only significant variable associated with "willingness to buy nanofood". In other words, men were more willing to buy nanofood than women (Table 20). The statistics reveal that level of education is not associated with willingness to buy nanotechnology products. Nevertheless, knowledge of nanotechnology is significantly associated with willingness to buy nanotechnology-related products (Table 21).

Table 19. Willingness to buy nanotechnology-based products.

Willingness to buy	Percentage (n = 309)
Would you want to buy food enhanced with nanotechnology, if available in the market?	
Yes	62.1
No	37.9
Would you want to buy a food container enhanced with nanotechnology, if available in the market?	
Yes	67.3
No	32.7

Table 20. Willingness to buy according to socio-economic variables and level of knowledge.

Variables	n	Willingness to buy			
		Willing to buy nanofood		Willing to buy nano-enhanced food container	
		Yes	No	Yes	No
Gender					
Male	159	67.9	32.1	70.4	29.6
Female	150	56.0	44.0	64.0	36.0
Age					
<18	6	66.7	33.3	50.0	50.0
18–27	107	56.1	43.9	67.3	32.7
28–37	106	67.0	33.0	70.8	29.2
38–47	48	56.2	43.8	64.6	35.4
48–57	37	67.6	32.4	64.9	35.1
>58	5	100.0	0.0	60.0	40.0
Highest education					
Primary school	4	75.0	25.0	50.0	50.0
Secondary school	103	67.0	33.0	62.1	37.9
University/college	202	59.4	40.6	70.3	29.7
Level of knowledge					
Little or nothing		55.2	44.8	59.1	40.9
Some or a lot		71.9	28.1	78.9	21.1

Table 21. Chi-squared values for the willingness to buy.

Variables	χ^2	
	Willingness to buy nanofood	Willingness to buy nano-enhanced food container
Gender	4.665 **	1.455 ns
Age	6.999 ns	1.773 ns
Education level	1.953 ns	2.617 ns
Level of knowledge	8.810 ***	13.346 ***

*** Significant at $P < 0.01$; ** Significant at $P < 0.05$; ns = not significant.

4. Conclusions and recommendations

The study has shown that the level of awareness of nanotechnology among Malaysians is rather low compared to the developed countries. Despite the lack of knowledge about nanotechnology among the respondents in general, most agree that the technology could modify foods depending on their needs and taste but has the possible risk of introducing insoluble and indigestive materials that potentially alter tissue distribution. Persons who know of nanotechnology think positively towards nanotechnology. They want to buy nanofood and nano-enhanced food containers and also think that benefits are greater than risks. There would be a greater chance of selling nanotechnology-based products if the level of awareness and knowledge about nanotechnology among Malaysians were to increase. As knowledge of the subject was the most important factor found in this study, educational advertising through the mass media could become a tool to educate and increase awareness among the public. This is vital for reducing the number of people who have no idea about the benefits and risks of nanotechnology. Instilling awareness of and knowledge about nanotechnology and providing information about its benefits and risks to Malaysians at large should be the responsibility of the captains of the relevant industries, nongovernmental organizations and the Malaysian government alike.