

Questionnaire on Microplastics and Nanoplastics

Disclaimer

Dear all, The University of L'Aquila is surveying to gather information on the general population's knowledge and opinions on MICROPLASTICS and NANOPLASTICS in environmental matrices. Participation in the study is voluntary, and we sincerely hope we can count on your valuable collaboration.

The questionnaire is anonymous. The data will be treated in strict confidence and by data protection regulations, through statistical and non-individual processing.

NOTICE - Each user can complete the questionnaire ONLY ONCE. It is divided into five sections and will take approximately 15 minutes to complete. Until the 5th and final section is completed and the last 'SUBMIT' button is clicked at the end, it will always be possible to abandon the form (but losing the data entered up to that point) and start again.

INFORMATION ON THE STUDY AND PRIVACY PROTECTION

To access the questionnaire, users must declare that they have been informed about the study and consent to processing their data.

We therefore invite you to consult the attached documents (by clicking on the links in the text of the two fields below) and select the "I agree" button.

I have read and understood the INFORMATION sheet on the study and have received clear and comprehensive information.

I agree

I, the participant, having acquired the information provided by the data controller under Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons about the processing of personal data, as well as Legislative Decree 196/2003 and subsequent amendments and/or additions, I give my consent to the processing of the data necessary to carry out the operations indicated in the privacy policy

I agree

General data

3. Age (years)

4. Province of residence

5. Gender

- Female
- Male
- Other

6. Education

- PhD or similar
- University degree
- High school
- Middle school
- Primary school
- None

7. Job condition

- Employed
- Household
- Looking for a job
- Retired
- Unable to work
- Student
- None

8. Job sector

- Agriculture, forestry, gardening
- Animal husbandry, livestock farming, and fishing
- Industry (mechanical, textile, chemical, food, etc.) and extraction (minerals, fossils)
- Energy production, water supply and management, waste disposal
- Construction
- Commerce and distribution
- Office services
- Education
- Healthcare system
- University and research
- Armed forces
- Transportation
- Crafts
- Hotels and restaurants
- Professioni, consulenza scientifica e tecnica
- Professions, scientific and technical consulting
- Sports activities
- Arts
- Personal and family services
- Communication and information

9. Through which channels and how often do you keep yourself informed about issues concerning health and the environment? *Often - Rarely*

- Television
- Radio
- Social network (Facebook, Twitter, WhatsApp, Instagram, etc.)
- Websites
- Newspapers
- Specialised journals
- Books
- Conferences
- Acquaintances

Answer treated as a frequency variable

Knowledge and Opinions

10. How many types of plastics exist?

- More than 5
- More than 10
- More than 15
- I am not sure

Score: correct = +1, incorrect = -1, I am not sure=0

11. Which of the following statements about advantages/disadvantages apply to PLASTIC?
(**TRUE / FALSE / I don't know**)

Score: True= +1, False = -1, I don't know=0

- a. Its production is more cost-effective than other materials (e.g., iron, wood).
- b. It's light
- c. It's recyclable
- d. Can it be of any colour
- e. It is challenging to degrade
- f. It is bioaccumulated in living beings
- g. Resistant to corrosion
- h. Its production and disposal cause large quantities of greenhouse gases to be emitted.

12. Which of the following objects/materials are plastic products? (**YES / NO**)

Score: Yes= +1, No = -1

- a. Bottles of soft drinks (e.g., orange soda, fruit juices, cola, etc.)
- b. Computer keyboards and mouse
- c. Synthetic tissues
- d. Some paints
- e. Plexiglass

13. How long does it take for a plastic bottle left in the environment to decompose?

- In 50 years
- Between 50 and 100 years
- Between 100 and 250 years
- Between 250 and 400 years
- Between 400 and 500 years
- I am not sure

Score: correct = +1, incorrect = -1, I am not sure=0

14. Have you ever heard of Microplastics?

- YES
- NO
- I'm not sure

Answer treated as a frequency variable

15. Have you ever heard of Nanoplastics?

- YES
- NO
- I'm not sure

Answer treated as a frequency variable

16. Which of the following statements about MICROPLASTICS/NANOPLASTICS is correct?

(TRUE / FALSE/ I don't know)

- a. Microplastics are particles smaller than 5 millimetres in size
- b. Nanoplastics are particles larger than 5 millimetres in size (*)
- c. Microplastics can be released from exfoliating cosmetic products
- d. Microplastics can be released from toothpaste
- e. Microplastics can be released from synthetic fabrics during washing
- f. Microplastics can be released from tires rubbing against the road
- g. Microplastics can be released from road marking paints
- h. Microplastics can be released into the environment from decomposing plastic bottles
- i. Microplastics can be released from paints used on ship hulls
- j. Microplastics can be released from products used in manufacturing (e.g., plastic pellets)

Score: True= +1, False = -1, I don't know=0

() reverse the score*

17. Which environmental matrices are MICROPLASTICS / NANOPLASTICS likely to be found through laboratory analysis? **(YES / NO / I'm not sure)**

- a. Sea waters
- b. Freshwaters
- c. Uncultivated land
- d. Cultivated land
- e. Countryside air
- f. Urban air

Score: Yes= +1, No = -1, I'm not sure=0

18. In your opinion, which of the following foods are likely to contain MICROPLASTICS/NANOPLASTICS when analysed in a laboratory? **(YES / NO / I'm not sure)**

- a. Meat
- b. Fish
- c. Fruit
- d. Vegetables
- e. Cereals
- f. Milk and derivatives
- g. Bottled water
- h. Tap water

Score: Yes= +1, No = -1, I'm not sure=0

19. Are there specific regulations concerning the amount of MICROPLASTICS and/or NANOPLASTICS in the ENVIRONMENT (national or European level)? **(YES/ NO/ I'm not sure)**

20. Are there specific regulations concerning the amount of MICROPLASTICS and/or NANOPLASTICS in FOOD (at national or European level)? **(YES / NO/ I'm not sure)**

21. Which of the following ways can plastic enter the human body? **(YES / NO/ I'm not sure)**

- a. Dermal contact
- b. Inhalation
- c. Oral intake

Score: Yes= +1, No = -1, I am not sure=0

22. Can microplastics introduced into the human body damage health?

- YES
- NO
- I'm not sure

Score: Yes= +1, No = -1, I am not sure=0

23. Which organs/systems can MICROPLASTICS have toxic effects on humans and other living species, such as molluscs, fish, crustaceans, insects, amphibians, reptiles, birds, wild mammals, and domestic animals? (more than one answer possible) **(YES / NO/ I'm not sure)**

- a. Endocrine system, i.e., the functions of the human body based on the action of hormones (e.g., reproductive system, glands such as the thyroid, etc.)
- b. Liver
- c. Kidney
- d. Sight (*)
- e. Hypercholesterolemia
- f. Cardiovascular system
- g. Immunitary system

Score: Yes= +1, No = -1, I am not sure=0 (*) reverse the score

24. Which organs/systems can NANOPLASTICS have toxic effects on humans and other living species, such as molluscs, fish, crustaceans, insects, amphibians, reptiles, birds, wild mammals, and domestic animals? (more than one answer possible) **(YES / NO/ I'm not sure)**

- a. Endocrine system, i.e., the functions of the human body based on the action of hormones (e.g., reproductive system, glands such as the thyroid, etc.)
- b. Liver
- c. Kidney
- d. Sight (*)
- e. Hypercholesterolemia
- f. Cardiovascular system
- g. Immunity system

Score: Yes= +1, No = -1, I am not sure=0 (*) reverse the score

25. MICROPLASTICS are

- A definite carcinogen
- A probable or possible carcinogen
- Not carcinogenic to humans
- The relevant international scientific bodies still have conflicting opinions
- I am not sure

Score: correct = +1, incorrect = -1, I am not sure=0

26. NANOPLASTICS are

- A definite carcinogen
- A probable or possible carcinogen
- Not carcinogenic to humans
- The relevant international scientific bodies still have conflicting opinions
- I am not sure

Score: correct = +1, incorrect = -1, I am not sure=0

27. Are all types of plastics carcinogenic? **(YES / NO / I'm not sure)**

Score: Yes= -1, No = +1, I am not sure=1

Behaviours

28. How often do you buy plastic bags (non-biodegradable), such as at the supermarket checkout?

- Every time I go to the grocery store
- Frequently
- Sometimes
- Rarely
- Never

Answer treated as a frequency variable

29. For which of the following reasons do you buy plastic bags (non-biodegradable)? (YES/NO)

- a. They are comfortable
- b. They can be reused
- c. I find them available
- d. They are cheap
- e. They are light
- f. I forgot my reusable bags/envelopes
- g. There are no alternatives

Answer treated as a frequency variable

30. What happens to the plastic bags (non-biodegradable) that you buy after using them? (YES/NO)

- I use them again
- I use them for garbage storage
- I discard after a single use
- Other

Answer treated as a frequency variable

31. How would you change your consumption habits if you found out that fish and seafood contain microplastics?

- I would consume them as always
- I would reduce their consumption
- I would never eat them again
- Other

Answer treated as a frequency variable

32. If you found out that toothpaste contains microplastics, how would you react?

- I would use it as always
- I would reduce its use
- I would never use it again
- Other

Answer treated as a frequency variable

Perceived risk of exposure to MICROPLASTICS and NANOPLASTICS

Taking into account your beliefs, express your opinion on various aspects characterising the 'DANGER OF MICROPLASTICS AND NANOPLASTICS' when exposed to different environmental and food matrices

33. Which of the following images concerns you most regarding the negative impact of plastic waste? (Choose only one image.)



Imagine 1



Imagine 2



Imagine 3



Imagine 4



Imagine 5



Imagine 6

Answer treated as a frequency variable

34. Do you think that Microplastics are already in our bodies?

- YES
- NO
- I'm not sure

Answer treated as a frequency variable

35. Consider the issue of MICROPLASTICS/NANOPLASTICS and select the option that best reflects your opinion

Completely **Very much** **Somewhat** **A little** **Not at all**

- a. In general, do people have control over how much they are exposed to this problem?
- b. Is it easy for you to know whether the food you are about to eat or the water you drink contains residues of microplastics/nanoplastics?
- c. Is it likely that your health will be harmed by consuming food or water containing microplastics/nanoplastics?
- d. Do you think the damage to your health could be severe if you consumed food or water containing microplastics/nanoplastics?
- e. Are you concerned about the potential risks of consuming food or water containing microplastics/nanoplastics?
- f. Do you think the health risks of microplastics/nanoplastics are natural and not artificial?
- g. Do you think consumers are adequately aware of the health risks of microplastics/nanoplastics?
- h. Do you think science is adequately aware of the health risks of microplastics/nanoplastics?
- i. Do you think you know the health risks of microplastics/nanoplastics?
- j. In your opinion, is microplastic/nanoplastic contamination a recent problem and, therefore, did it not exist in the past?
- k. In your opinion, do the adverse effects caused by microplastics/nanoplastics manifest immediately?

Score: Completely=5 Very much=4 Somewhat=3 A little=2 Not at all=1

OTHER KNOWLEDGE & OPINION QUESTIONS

36. Which public strategies or technological solutions regarding plastic should governments adopt? (YES/NO)

- a. Use alternative materials instead of plastic whenever possible
- b. Make plastic products lighter to reduce their overall quantity
- c. Use biodegradable plastic
- d. Promote the separate collection and recycling of plastic
- e. Encourage initiatives and technological solutions for the remediation of natural environments (e.g., beaches, oceans)
- f. Offer free reusable bags
- g. Ban the sale of plastic bags
- h. Educate the population
- i. Improve water purification technology

Answer treated as a frequency variable

37. What does this symbol/pictogram mean? (only one answer)

- Recyclable plastic
- Recycled plastic
- Plastic that can be used for various purposes
- I am not sure

Score: correct = +1, incorrect = -1, I am not sure=0



38. What does this symbol/pictogram mean? (only one answer)

- Remember to recycle the product
- Do not dispose of in the environment
- Dispose of with paper
- I am not sure

Score: correct = +1, incorrect = -1, I am not sure=0



39. What does this symbol/pictogram mean? (only one answer)

- The material can be recycled, but only up to 75%
- Material recycled for 75% of its composition
- Material that falls within the 75% of recyclable plastics
- I am not sure

Score: correct = +1, incorrect = -1, I am not sure=0



40. What does this symbol/pictogram mean? (only one answer)

- Packaging made entirely from recycled material
- The manufacturer participates in a specific packaging collection system, but this does not necessarily mean that the packaging is recyclable
- recyclable packaging
- I am not sure

Score: correct = +1, incorrect = -1, I am not sure=0

