Report from the monitoring of Dengue in Italy through digital epidemic surveillance InfluWeb

Report #1

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Summary

The sample collected through InfluWeb between May 13 and June 10, 2024, consists of 349 participants, mainly individuals over 40 years old. There is a slight predominance of men over women, with most participants coming from the North-West of Italy, followed by the North-East and Central regions. Over 85% reported being aware of the disease; 38% consider their knowledge about Dengue to be vague, while more than 40% believe they have moderate to high knowledge. However, less than a third (30%) actively sought information, primarily from information and dissemination websites (over 60%), national newspapers (26%), and medical personnel (20%).

Two out of 349 participants were vaccinated against Dengue; 64.8% of the remaining participants expressed willingness to get vaccinated if a vaccine were available. The main reason for not getting vaccinated, reported by half of those who would not get vaccinated, is not belonging to a risk category. The surveyed population tends to be little concerned about Dengue infection and its economic consequences. None of the participants tested positive for the disease, but despite the low prevalence of the disease, three of them know at least one person who tested positive. In all three cases, it was someone not directly known to them.

Introduction

Dengue is an infection caused by four viruses of the Flavivirus family and is transmitted to people by the Aedes Aegypti and Aedes Albopictus mosquito species, the latter known as the tiger mosquito. Transmission occurs through the importation of cases from at-risk areas, which facilitates the virus's transmission from humans to local mosquitoes and consequently from infected mosquitoes to new patients.

In recent months, South America has seen a significant increase in Dengue cases compared to previous years, reflected in an increased risk of imported cases in Italy. Dengue virus infections in Italy are on the rise: according to the Istituto Superiore di Sanità, there were 259 cases as of June 30, 2024, all imported cases, with a median patient age of 43 years, while last year there were over 200 cases, 82 of which were autochthonous, i.e. due to infections occurring in Italy.

In most cases, the disease does not produce symptoms. Typical symptoms include fever, with very high temperatures, accompanied by headaches, pain around and behind the eyes, severe muscle and joint pain, nausea, vomiting, and skin irritation.

Methods

A questionnaire is administered monthly to InfluWeb participants, the participatory surveillance platform for influenza monitoring in Italy, which is active this year also in the summer to monitor the Dengue situation and the adoption of preventive behaviors against Dengue infection.

Once a month, InfluWeb participants are given an additional questionnaire after completing the one on influenza symptoms, in which we collect information on the level of knowledge, prevention, and concern, as well as potential symptoms compatible with Dengue and self-reported diagnosed cases among the population.

Questions about the level of concern and estimated effectiveness of certain anti-infection measures are marked with a Likert scale, indicating the level of concern and effectiveness, from 1 (very low) to 5 (very high).

Results

Sample

In the first month (May 13 - June 10), 349 participants completed the survey. Below is their distribution by gender, age, and macro-region of origin.

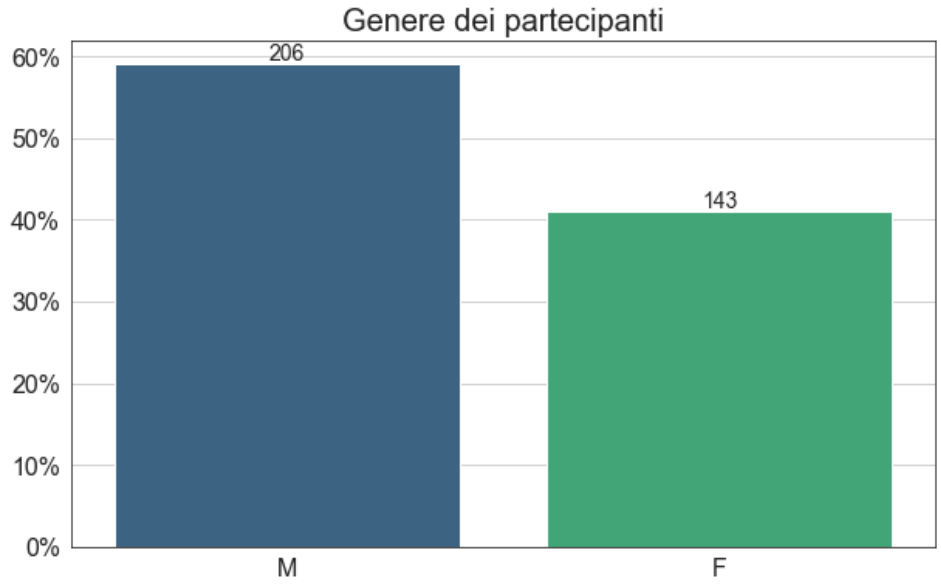

Figure 1: Percentage of responses obtained by gender. The absolute number of responses received is shown above each column.

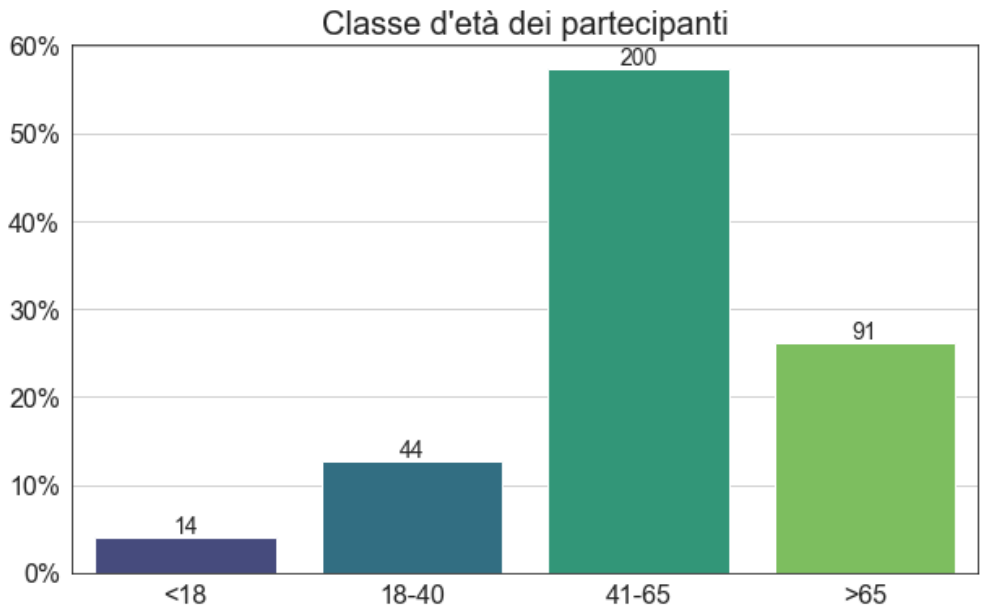

Figure 2: Percentage of responses obtained by age group. The absolute number of responses received is shown above each column.

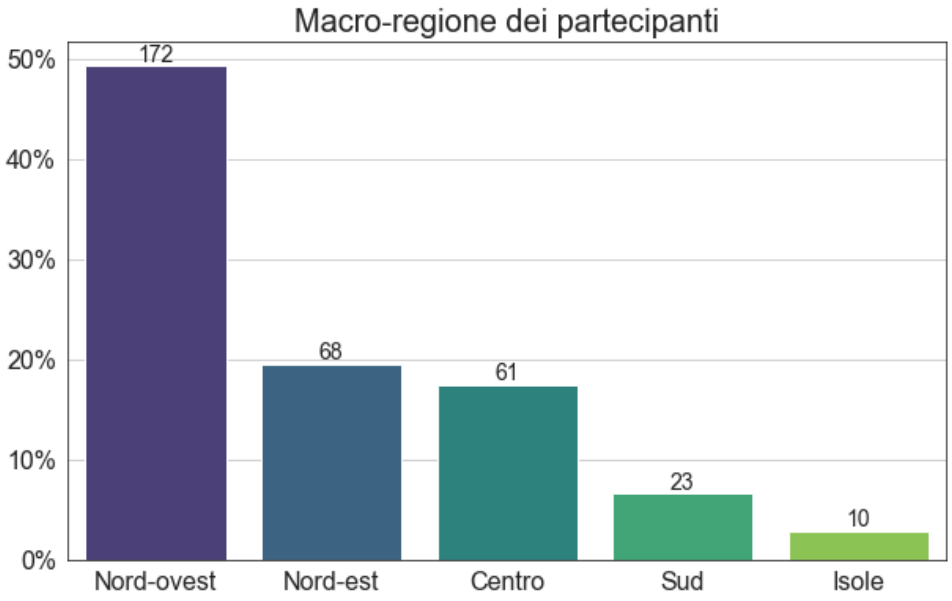

Figure 3: Percentage of responses obtained by macro-region. The absolute number of responses received is shown above each column.

Dengue symptoms

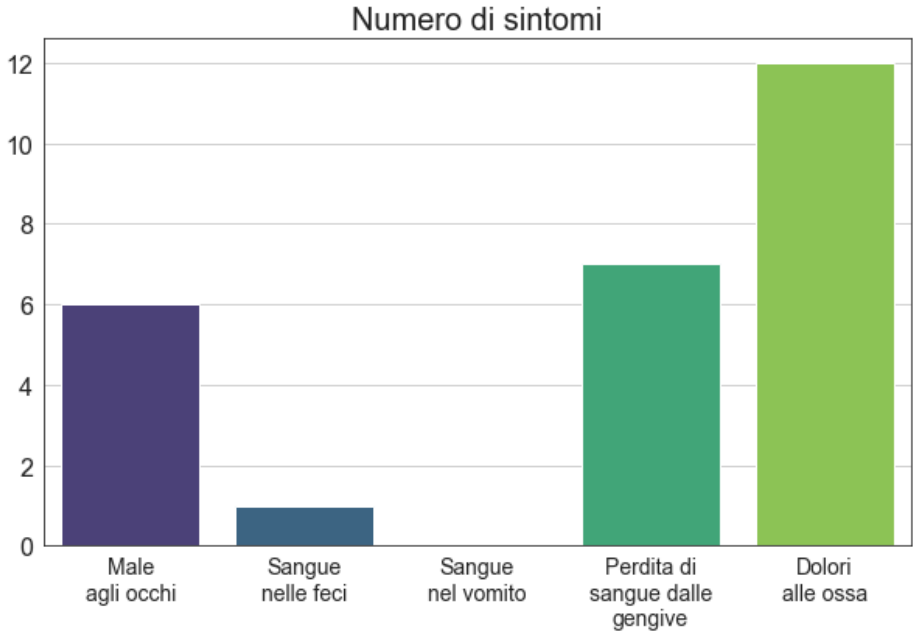

Figure 4: Number of specific Dengue symptoms reported by participants.

Awareness

Of the 349 participants, 299 (85.7%) were aware of Dengue. Of these, 90 (30.1%) actively sought information on the spread of Dengue. The information was sought from the following media (multiple responses):

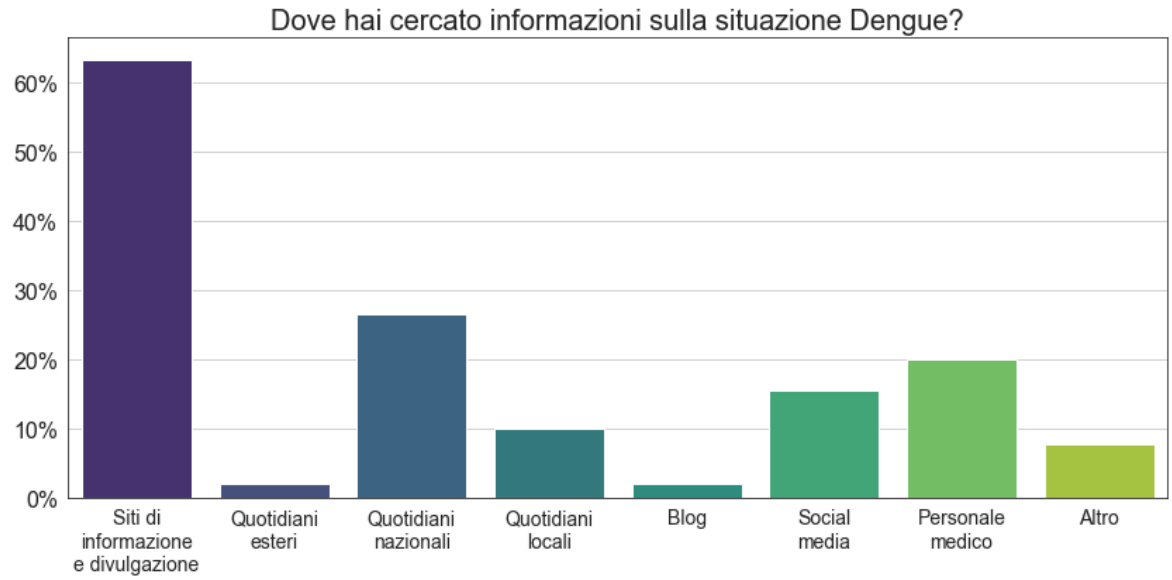

Figure 5: Percentage of participants who reported each source of information among those who sought information on the spread of Dengue.

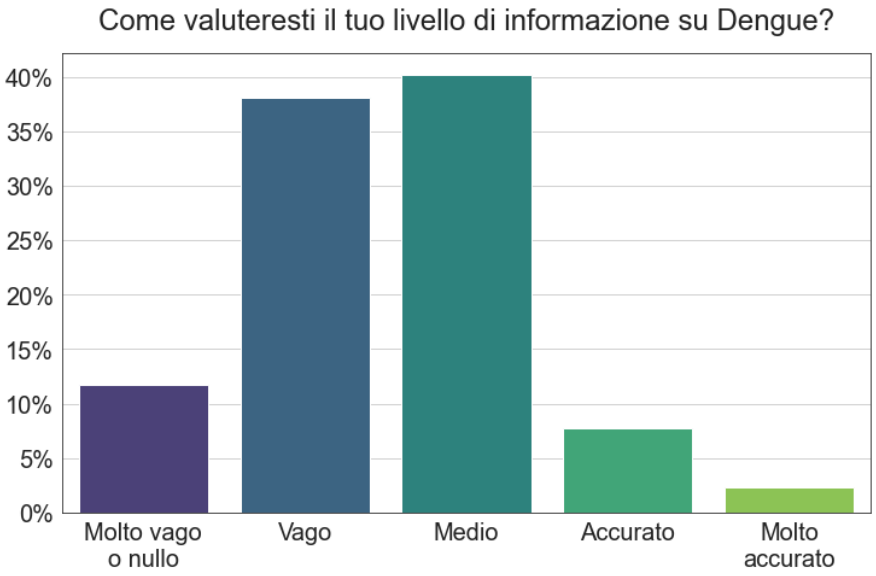

Figure 6: Self-declared level of information on a scale from "Very vague or none" (minimum, dark blue) to "Very accurate" (maximum, light green).

Knowledge of Dengue Characteristics

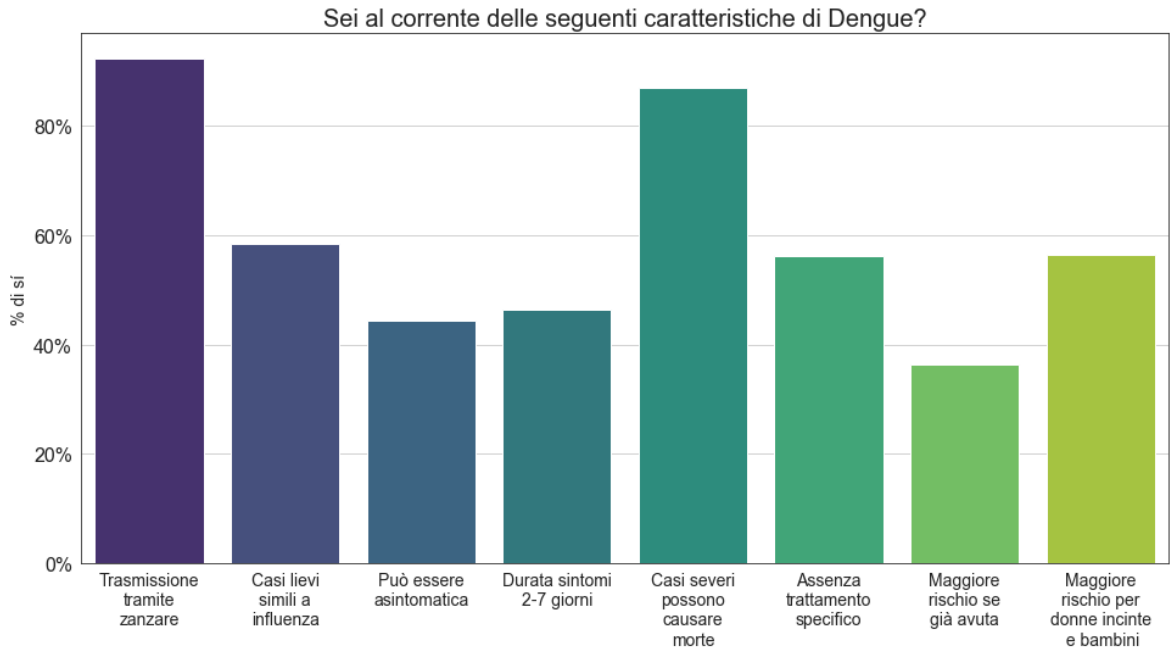

Figure 7: Percentage of participants who reported knowing the characteristics of Dengue.

Concern

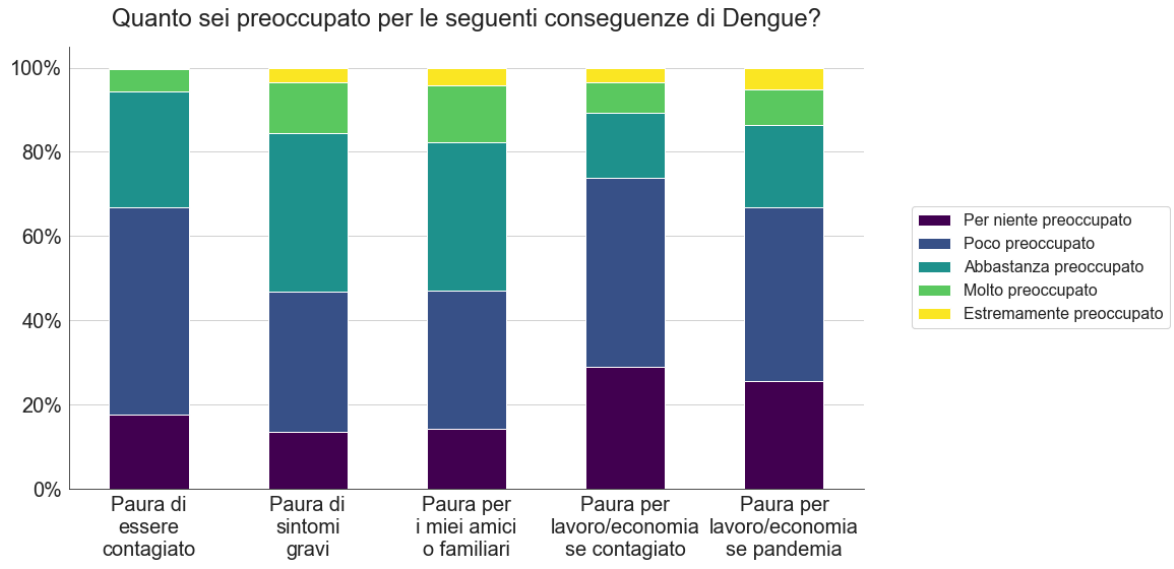

Figure 8: Level of concern from the lowest (Not concerned at all in dark blue) to the highest (Extremely concerned in yellow) for each of the 5 investigated consequences. The sum of the responses in each bar equals 100%.

Vaccination

Of the 349 participants, 2 (0.6%) were vaccinated. Among the 347 unvaccinated participants, 225 (64.8%) would get vaccinated if offered a vaccine. Of these, 130 (57.8%) are men and 95 (42.2%) are women. Additionally, 58 (25.8%) are over 65.

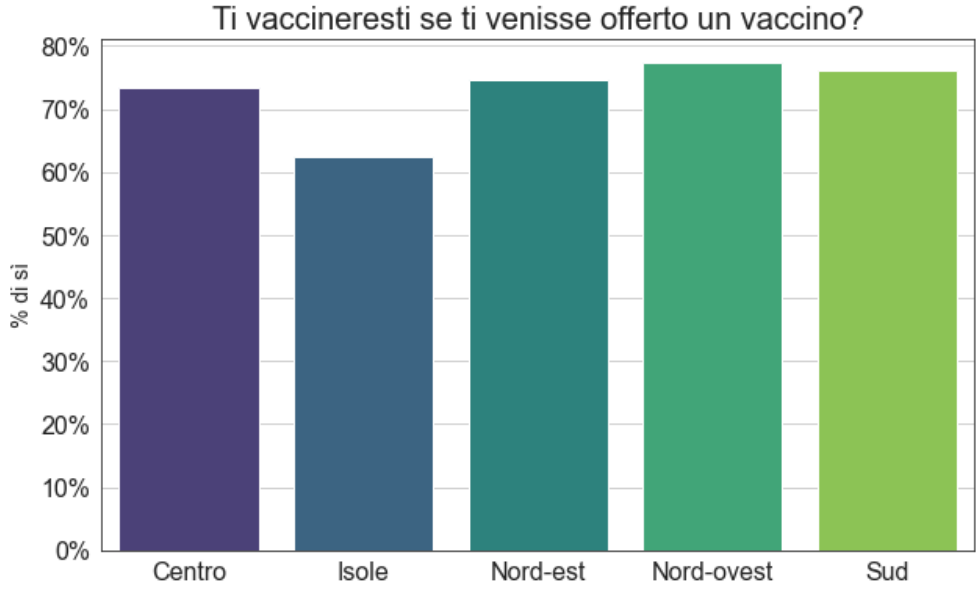

Figure 9: Percentage of participants who would get vaccinated, divided by macro-region.

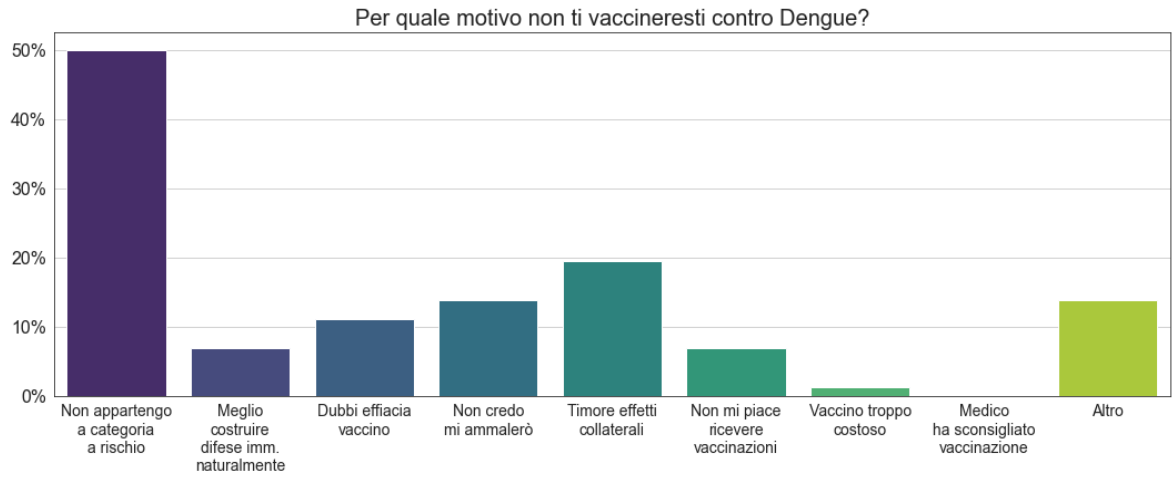

Figure 10: Percentage of reasons selected by those who would not get vaccinated against Dengue. Left to right: *"I don't belong to any risk category", "I prefer to build my own immune defenses", "I doubt about the vaccine efficacy", "I do not believe I will get sick", "Fear for side effects", "I do not like to receive vaccines", "The vaccine is too expensive", "My GP dissuaded me from getting the vaccine", "Other".*

Diagnosis

None of the 349 participants were diagnosed with Dengue. However, 3 of them (0.9%) reported knowing someone diagnosed with Dengue. In all three cases, it was someone rarely seen or not directly known.

Conclusions

- None of the 349 people who responded in the first month of the survey tested positive for Dengue, but one person reported being diagnosed with Dengue in the second month of the survey.
- Three participants said they knew at least one person who tested positive. In all three cases, it was someone not directly known to them.
- 2 participants out of 349 were vaccinated, but 64.8% of the remaining participants expressed willingness to get vaccinated if offered a Dengue vaccine.
- The main reason for not getting vaccinated is not belonging to a risk category, reported by half of the participants.
- The majority of the population (more than 70%) considers themselves vaguely or moderately informed about Dengue.
- More than 85% of people reported being aware of Dengue. Less than a third (30%) of them actively sought information.
- The primary source of information is information and dissemination websites (over 60%).
- The population is typically not very concerned, especially about contagion and economic consequences.
- Of the 349 participants, there is a majority of men, individuals aged 41-65, and individuals from the North-West of Italy.

Limitations

This study has some limitations, the primary one being voluntary participation, which makes the survey statistics not representative of the entire Italian population. The participants' responses, although the question on Dengue infection concerns a doctor's diagnosis, are not subject to any medical-professional control certifying the participant's truthfulness.

Acknowledgments

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