

Why social perception matters during disease outbreaks: looking at how individuals understand the Zika virus by self-reported history of infection

Por que a percepção social é importante durante os surtos de doenças: observando como os indivíduos entendem o Zika vírus por história de infecção autorreferida

Por qué la percepción social es importante durante los brotes de enfermedades: cómo los individuos entienden el virus del Zika por una historia autoinformada de infección

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We respond to the comment to our article *Signifying Zika: Heterogeneity in the Representations of the Virus by History of Infection* with the goal of reassuring our findings.

Our article and supplementary material extensively discussed the limitations of survey data in lieu of biomarkers. However, the key in social health research is whether respondents believe they were infected with Zika virus (ZIKV) and had a positive diagnosis (clinical or serological). Short of directly testing individuals, directly asking them about the source of their diagnosis has been shown to be the most effective methodology for social health analysis ¹. Whether or not individuals actually were infected by the virus, our article evaluated their perceptions. There is a well-established empirical and conceptual literature on how risk perceptions and perception of diseases shape behavior ^{2,3,4,5,6}. The Health Belief Model ⁷, for example, suggests that individual behavior is directly shaped by their perceptions of risk. As such, both objective (serology and clinical exams) and perceived diagnosis have concrete implications on how individuals deal with a disease. Importantly, differences in how individuals perceive their risk of infection have contributed to the effectiveness (or not) of public health campaigns ⁸. Given the diversity of meanings towards ZIKV, our main finding remains, i.e., we showed that trying to reach the entire Brazilian population using a single message or strategy might not be effective to produce change within groups that capable of or ready to change.

Extensive analyses were conducted, given that we were aware of the possible limitations of the measurement (the presence of the virus may change the symptom, and the symptom can change perception); these analyses are available as supplemental materials. We tested whether the type of diagnosis (clinical or serology) affects the ways individuals signify ZIKV. Individuals who share the same type of diagnostic criterion are statistically more likely to have similar representations of ZIKV (OR = 1.377) than those who share some representations, but with different types of diagnosis. Comparing the webs of meaning by individuals' diagnostic criteria, we found that those who reported to have been tested for ZIKV had a much closer and consistent representation of the disease as described by the symptoms commonly associated with the virus. One interesting and revealing finding is that itching was more frequently found for those with ZIKV based on self-reported clinical diagnosis. The reason for that is because one of the first bulletins released by the Brazilian Ministry of Health about Zika brings a list of the most common symptoms possibly linked to ZIKV infection, comprising fever, rash (with itch), joint pain/swelling, conjunctivitis, muscle pain, and headache. These symptoms were

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then used for clinical diagnoses of patients in the public health service nationwide. The protocol for ZIKV in the state of Minas Gerais suggests that the presence of rash with itch with at least two other symptoms of the disease were already considered a condition for ZIKV notification and clinical diagnosis⁹. This protocol may have lead patients presenting itching to be automatically diagnosed with ZIKV, even without serological testing.

Given the severe access limitations and the reliability of data on diagnosis and history of infection, our analysis based on self-reported history of infection does reflect interesting and revealing findings on how diverse social representations of the same disease depend on the level of experience and knowledge of the disease itself. However, because of the social psychological nature of this research, whether respondents perceive that they have had a positive ZIKV diagnosis (clinical or serological) is key.

Contributors

All authors contributed in the elaboration of this text.

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