

## Knowledge and perceptions about Covid-19 in the marginalized population of southeastern Mexico

Dear editor: Health measures to protect against Covid-19 are the main tool to curb infections,<sup>1</sup> yet misinformation and different cultural perceptions could be one obstacle towards this aim. This is especially the case of marginalized areas, especially indigenous populations.<sup>2</sup> After applying an extensive survey (N= 1 000) among young people (15-18 years old) from marginalized areas of the Southeastern state of Chiapas, we found that a large part of the study population: believed in the existence of the disease, knows the main symptoms and some contagion mechanisms (table I). Moreover, they also believed that the disease had a conspiratorial origin which may explain why they showed low care in sanitary measures against contagion. For example, a substantial number of respondents (48%) wore masks, engaged in social distancing (60%) or avoided attending meetings (65%). Furthermore, 43% of the study population felt highly threatened by the Covid-19 pandemic and feared for their local economy (37.19%). Related to the later, the most frequent feelings detected were fear (68%) and worrying (48%). These public actions and perceptions of the pandemic can help us understand the underlying factors in community decision-making for health care. We believe that there are two major challenges facing this pandemic in marginalized and rural areas: 1) the population's mistrust of the authorities and 2) misinformation and the prevalence of false ideas that can undermine efforts to adopt preventive measures.<sup>3</sup> Although changing the behavior of a society is difficult, creating motivational strategies and tools can render a positive impact. Given this, young people can play a strategic role

**Table I**  
**KNOWLEDGE ABOUT SOME ASPECTS OF COVID-19 AMONG THE YOUTH FROM CHIAPAS STATE, MEXICO, ACCORDING TO THEIR ORIGIN. DATE WHEN DATA WERE GATHERED JUNE 1-30, 2020**

	Indigenous (%)	Non-indigenous (%)	p value
Covid-19 existence	86.9	91.3	0.037
Signs/symptoms			
Fever	63.7	78.6	<0.001
Breathing difficulty	61.2	84.4	<0.001
Headache	52.3	52.1	0.947
Dry cough	48.7	50.8	0.53
Transmission mechanisms			
Sneeze	56.5	43.5	0.002
Saliva	53.4	46.6	0.002
Contaminated surfaces	59.3	40.8	0.527
Conspiratorial origin	66	66.7	0.929

in the response to mitigate the effects of Covid-19 by being in contact with scientific knowledge and their close relationship with new digital sources and social networks (Facebook, WhatsApp, Instagram, among others) that can serve as dissemination platforms.

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## Challenges in the management of Covid-19 patients in a neurological center in Mexico City

Dear editor: In March 2020, as the SARS-CoV-2 infection spread in Mexico, the national healthcare system was fully restructured. Several high specialty hospitals in Mexico City served Covid-19 patients only. While the *Instituto Nacional de Neurología y Neurocirugía* (INNN) was not a Covid

**Table I**  
**CLINICAL OUTCOME IN SARS-CoV-2 RT-PCR-CONFIRMED PATIENTS IN INSTITUTO NACIONAL DE NEUROLOGÍA Y NEUROCIRUGÍA FROM MARCH 1 TO DECEMBER 31. MEXICO, 2020**

	Survival (N = 13)	Death (N = 7)	p
ICU management requirement	3 (33%)	6 (67%)	0.01
Requirement of intubation	2 (22%)	7 (78%)	0.0001
Age (years)	37.9 ± 16	62.7 ± 13	0.001
Oxygen saturation (%)	90 ± 8	74 ± 15.7	0.007
Glasgow coma scale	13.5 ± 2.9	10.1 ± 4.3	0.04
Neutrophils/mm <sup>3</sup>	7.5 ± 5.3	12.1 ± 3.8	0.04
Lymphocytes/mm <sup>3</sup>	1.7 ± 1.4	1.1 ± 0.8	0.3
Ratio: neutrophils/ lymphocytes	7.3 ± 7.5	15.2 ± 8.4	0.04
Seric albumin (g/dL)	3.8 ± 0.7	2.5 ± 0.7	0.02
Ratio: albumin globulin	1.2 ± 0.3	0.7 ± 0.2	0.0001

ICU: Intensive Care Unit

hospital, the Emergency and Intensive Care Unit (ICU) areas were restructured, and the care flow chart for emergency and outpatient care were modified. These changes were made considering the likelihood of having: 1) Covid-19 patients with severe neurological symptoms/complications, and 2) outpatients with neurological/neurodegenerative diseases cared for in the hospital, in higher risk of SARS-CoV-2 infection after a chronic use of immunomodulators and the high prevalence of obesity, diabetes, and hypertension. Our concerns were that hospitalized neurological patients could be asymptomatic but able to infect other patients, and the risk of nosocomial infections in Covid-19 confirmed patients. Thus, an appropriate strategy to evaluate patients upon emergency- or elective-hospital admission was urgently needed. As well as molecular tests or at least a chest CT scan plus ancillary tests for Covid-19 biomarkers. Since routine RT-PCR was not available in our center, all biological samples were processed in the *Instituto de Medicina Genómica* and the *Instituto de Diagnóstico y Referencia Epidemiológicos*, and results were delivered within 3

to 5 days. Since serological tests were also unavailable, infection underdiagnosis was a concern. In a descriptive review of suspected Covid-19 infection cases in the period March 1 to December 31, 2020, 558 Covid-19 suspicious cases were found at the INN; 354 healthcare workers and 204 patients. In that period, 1 230 patients were hospitalized for neurosurgery or neurological treatment; from them, 204 were suspected of Covid-19 infection but only 24 were confirmed by RT-PCR and a compatible clinical picture. Four confirmed cases (17%) were newly admitted patients and were transferred to a Covid hospital; all other cases were inpatients, suffering from brain tumor (5), epilepsy (3), Parkinson disease (2), or neuromuscular disorders (3). A summary of the clinical outcome in Covid-19 patients is shown in table I. As the epidemiologic risk in Mexico City was lowered from "highest" to "moderately high", our temporary Covid areas (emergency and ICU Covid unit, 12 beds) were de-converted. In October, all confirmed Covid patients were transferred to the neuroinfectology unit (4 beds). New patients were referred to Covid-19 designated hospitals. On

December 25, 2020, RT-PCR results were delivered within two days and serologic tests were available, but the lack of healthcare workers persisted. Fatigue and psychological complaints were common in healthcare staff, particularly in Covid-19 areas. A year after the onset of the pandemic, several health challenges persist in Mexico and the world. The pandemic worsened the pre-existing lack of appropriate infrastructure, medications, supplies, and sanitary personnel in low/middle income areas. Vaccination programs will be key in controlling the pandemic. However, it will take time, considering the limitations in mass vaccination efforts and the emergency of mutated SARS-CoV-2 strains (variants B117, 1351 and P1). Simple sanitary measures like the strict use of face masks<sup>1</sup> and frequent hand washing should be mandatory.

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