COVID-19 experience among Brasil's indigenous people

Paulo de Tarso Coelho Jardim[1]
Iêda Maria Ávila Vargas Dias[2]
Antonio Jose Grande[1]
Majella O'keeffe[3]
Paola Dazzan[4]
Seeromanie Harding[5]

1. Curso de Medicina, Universidade Estadual do Mato Grosso do Sul, Campo Grande, MS, Brasil.
2. Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brasil.
3. School of Public Health, Western Gateway Building, University College Cork, Western Road, Cork, Ireland.
4. Institute of Psychiatry, Psychology and Neuroscience, Kings College London, Denmark Hill Campus, London SE5 9RJ, UK.
5. Department of Nutritional Science, School of Life Course Sciences, Faculty of Life Sciences & Medicine, King's College London, Franklin Wilkins Building, London SE1 9NH, UK.

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As evidence accumulates of the disproportionate impact of COVID-19 on some ethnic minority groups, there is emergent evidence of the vulnerabilities of indigenous ethnic groups to COVID-19. On 1st April, the first COVID-19 case in Brasil's 734,000 indigenous population was confirmed[1]. She was an Indigenous Health Worker, 20 years old, of *Kokama* ethnicity, and from the Amazonas who had contact with a doctor diagnosed with COVID-19[2]. As of 25th June, the Ministry of Health reported 4769 COVID-19 cases and 128 deaths among Indigenous peoples. Brasil has 34 Indigenous Sanitary Districts (DSEIs) and 32 have reported positive cases (Table 1)[3]. Globally, Brasil ranks second in infections and mortality and the country is embroiled in a political crisis over COVID-19 management[4]. As with many indigenous populations worldwide, historic socio-environmental, governance, and access to health care issues make Brasil's Indigenous populations disproportionately vulnerable to poor COVID outcomes. We report on current challenges for implementing COVID-19 response measures and early indigenous-led protection initiatives.

The Brazilian Indigenous health subsystem districts, a branch of the National Health System, is located according to geographic, epidemiologic, and ethnographic factors which do not align with the geographic boundaries of the 26 states of Brasil. This creates challenges for the governance and resourcing of the Indigenous health subsystem. The subsystem is ill-prepared for pandemics with the absence of health teams in many villages, long distance to the nearest *Polo Base* (primary care health unit), shortage of beds for inpatients, and difficulties transporting patients to the nearest intensive care unit. These challenges are particularly problematic for communities that are far from urban centers. Living near to or in urban centers, however, carries a high risk of transmission from social vulnerability due to the lack of recognition of borders of indigenous territories and ineligibility for support from government programs for indigenous

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CORRESPONDING AUTHOR: Paulo de Tarso Coelho Jardim
Av. Dom Antônio Barbosa, 4155, Vila Santo Amaro, Campo Grande, MS, Brasil – 79115-898
Tel: +55 67 98402-3390
E-mail: paulo.tacoja@gmail.com

TABLE 1. NUMBER OF INDIGENOUS TESTED FOR COVID-19 CONFIRMED, INFECTED, RECOVERED, AND DEATHS IN BRASIL.

Brazilian indigenous sanitary districts	Confirmed	Infected	Recovered	Death
Alagoas and Sergipe	46	16	27	2
Altamira	67	36	31	0
Alto Rio Juruá	112	86	25	1
Alto Rio Negro	289	131	147	10
Alto Rio Purus	138	74	60	3
Alto Rio Solimões	555	107	423	24
Amapá and Norte do Pará	246	114	131	0
Araguaia	0	0	0	0
Bahia	34	2	31	1
Ceará	289	129	156	4
Cuiabá	3	2	0	1
Guamá-Tocantins	417	160	247	10
South Interior	242	157	80	5
Kaiapó from Mato Grosso	5	0	5	0
Kaiapó from Pará	192	173	12	5
East of Roraima	247	187	48	11
South coast	51	36	14	1
Manaus	204	12	181	7
Maranhão	493	225	257	10
Mato Grosso do Sul	136	39	96	1
Minas Gerais and Espírito Santo	15	11	4	0
Middle Rio Purus	21	3	18	0
Middle Rio Solimões and Affluents	117	52	58	7
Parintins	44	9	33	2
Pernambuco	84	3	74	6
Porto Velho	65	25	38	2
Potiguara	69	62	7	0
Rio Tapajós	305	254	41	9
Tocantins	7	6	1	0
Vale do Javari	74	13	61	0
Vilhena	0	0	0	0
Xavante	52	49	1	1
Xingu	3	2	0	1
Yanomami	147	114	29	4
Total	4769	2289	2336	128

Source: http://www.saudeindigena.net.br/coronavirus/mmapaEp.php. Accessed on June 25th, 2020.

peoples who live outside of recognized territories[5,6]. The implementation of containment measures to prevent transmission is complicated by the extensive invasion of indigenous lands by "*grileiros*" (land invaders) and miners who may be infected with the virus. For example, *Yanomami* Indigenous Lands are regularly invaded by prospectors, and one of the first few COVID-19 cases was a 15-year-old *Yanomami* from *Aldeia Rehebe* in Roraima[7]. Ancestral and widespread cultural habits also create additional risks. For example, in the State of Mato Grosso do Sul a widely-spread habit among indigenous and non-indigenous people is to share an icy infusion of the herb Ilex paraguariensis in conversation circles using the same metal straw ('*bomba*'). These rituals remain active despite campaigns against sharing personal items.

R$10.84 million (~£1.7 million) in emergency resources have been allocated for the protection of indigenous people against COVID-19[9]. This covers the implementation of containment measures by local health practitioners, emergency transfers of symptomatic cases from villages to the nearest city with specialized care units, including hospitals with ICUs, purchase of food and hygiene items, removal of invaders from villages, and culturally accessible information[8]. Indigenous leaders, however, have reported delays in the receipt of these funds from Federal agencies. Several indigenous ethnic groups have created a support network to disseminate information in indigenous languages and have launched financial and food collection campaigns to guarantee basic items for the villages[10]. Indigenous students at the State University of Mato Grosso do Sul have developed short videos that have been disseminated via the internet to the Indigenous communities (https://youtu.be/MTguI3bqluk)[11]. Some communities (e.g. *Tereré*, *Tremembé*, *Potiguara*) have created physical barriers that are manned by volunteers, and passersby are subject to symptom and temperature checks. Suspected cases are referred to the local primary health care facility. Crucially, there have been no new COVID cases in these villages since the barricades were created, thus demonstrating the importance and impact of bottom-up leadership among indigenous communities. The Group of Friends of Indigenous Peoples, a multi-regional group of 20 countries, emphasized that it is crucial that indigenous peoples participate in the design, implementation and evaluation of COVID-19 response strategies. With 305 tribes speaking 274 languages, over 100 isolated indigenous groups in the Amazon, and lack of adequate surveillance systems, participatory governance is essential for the effective and equitable implementation of COVID-19 response strategies in these fragile contexts[12].

Author's Contribution

PTCJ, IMAVD, AJG, MO, PD, SH contributed to the interpretation of the data, article writing, relevant critical review of intellectual content and approval of the final version to be published.

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