

Original Research Article

The knowledge and perception about COVID-19 among three tribal population of Khagrachari hill district, Bangladesh: a community based cross sectional study on ongoing outbreak

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ABSTRACT

Background: The ongoing pandemic COVID-19 is a new disease that provides a little bit of knowledge. Modern society is getting further information about this pandemic. But the people who are far away from development may not get proper learning and instruction to defeat the new virus. Keep this reality in mind, and we aimed via this study to find out the precipitance and knowledge about COVID-19 of the tribal community from Khagrachari district, who are backward and less developed people of Bangladesh.

Methods: Simple random sampling method is used for selecting responders. A willing responder was interviewed using a per-developed questioner and 348 responders (Chakma-131, Marma-106 and Tripura-111) across the Khagrachari district. All statistical analyses were done by SPSS version 20.

Results: COVID-19 is a viral disease known by 87.0% Chakma, 85.0% Marma and 81.1% Tripura alongside 54.2%, 53.8%, and 60.4% Chakma, Marma Tripura; respectively think that COVID-19 is a deadly disease. Using face masks as a safety measurement about 87% of Chakma, 85% of Marma, and 81.1% of Tripura but using hand sanitizer or soap was slightly low compared to facemask use. Although they were eager to take a vaccine at a particular time, it seems they are not optimistic about the vaccine's efficacy.

Conclusions: Overall, the tribal population has sufficient knowledge about COVID-19 and has a good tendency to maintain proper health hygiene to prevent COVID19 infection.

Keywords: COVID-19, Pandemic, Chakma, Marma, Tripura

INTRODUCTION

Coronavirus disease 2019 (COVID-19) is a new respiratory disease caused by a highly infectious positive-sense single-stranded RNA virus known as Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which is under the *coronavirinae* subfamily.¹

Every country in the world is affected by the SARS-COV-2 epidemic, which is both endemic and pandemic. The epidemic began in China and has spread to nearly 221 countries worldwide, with 156,444,565 confirmed cases, 133,827,070 recoveries, and 3,263,823 deaths². COVID-19 is now mutating into COVID-21 after mixing with COVID-20, but infections and deaths are rising.

A 'public health emergency of international concern' was declared on 30 January 2020, and later, the situation was declared as a pandemic on 11 March 2020 by 'the world health organization' (WHO).³ But did not know the exact cause of the disease progression among the general population, especially tribal people may implicate delayed treatment in the rapid spread of infection. So, rising public awareness and knowledge are some of the significant keys to control this pandemic. In this situation, this study aims to find out the current knowledge, understanding, and perception among the tribal people of Bangladesh during the emergency crisis of the outbreak.

Though COVID-19 is a new disease and there is still no specific treatment. Many vaccines are enrolled worldwide at the begging of this year, but their efficacy is not proven doubtlessly. So awareness is the best weapon to fight with COVID-19. Different countries issued many health protocols to control the spread of the virus, such as hand wash at regular intervals, compulsory wear mask outside, social distancing, limiting crowd, and introducing lockdown.⁴ Huifang Xu et al conducted a cross-sectional study that reported that the majority of respondents were worried about COVID-19. At the same time, the lockdown policy directly affected their everyday lives, and they were generally optimistic about COVID-19 management.⁵ Social distancing activity is crucial for effective and timely infection control. At the same time, the implementation of personal preventive standards is strongly influenced by perception.⁶ As a result, assessing risk is an effective way to improve the approach to symptom prevention during universal disease outbreaks.⁷

Commonly fever, cough, difficulty breathing, loss of taste or smell, Sore throat, headache, muscle or body aches, fatigue, congestion, nausea or vomiting, diarrhoea are some common mild symptoms of COVID-19 express two to 14 days after exposure to SARS-CoV.⁸ Sometimes, the patient did not show any signs and got well without know about the infection. A study conduct at the first quarter of the pandemic showed that 81% of COVID-19 patients are asymptomatic.⁹ However, according to a recent meta-analysis (fixed effects) report, only 17% of the affected patients are asymptomatic, and asymptomatic information transmission is 42% lower than symptomatic information transmission.¹⁰ An affected person, both symptomatic and asymptomatic, can infect a healthy person via respiratory droplets and contaminated surfaces, but a person can also be affected by airborne SARS-CoV-2 virus.⁸

Several experiments, however, show that the virus evolved by recombination and purifying selection from virus reservoirs in nonhuman mammals such as bats.^{11,12} Most scientists believed that most of the study indicated that Bats might be the possible primary reservoir of this virus and transmitted to humans via an intermediate source.¹³ But till now, the intermediate source of origin is unknown. Directly it is shipping human to human and can very efficiently transmit from person to person through close contact despite people inside 6 feet radius.⁸ But, due

to mutation, several deadly variants have emerged that can cause septic shock, organ failure, pulmonary edema, severe pneumonia, and acute respiratory distress syndrome (ARDS).¹⁴ Typically, COVID-19 is a respiratory disease and mainly affects the lungs. On the other hand, it does not only affect the lungs but also all the body organs that can be involved in this disease, including the heart, liver, brain, kidney, skin, intestines, and eyes, when the virus spillage of the virus into the blood system.¹⁵

According to WHO, people of any age can be affected via COVID-19. Still, older people with premedical conditions such as cardiovascular disease and diabetes are at high risk of COVID-19 related fatality. 'institute of epidemiology, disease control and research' (IEDCR), the country's epidemiology institute, found the first COVID-19 case on 8th March 2020 and the first COVID-19 death on 18th March 2020.¹⁶ Total 767,338 confirmed COVID-19 cases were found, and 8,926,466 were vaccine doses administered till May 3, 2021, in Bangladesh.¹⁷ Up to this date, Bangladesh faced 11,755 COVID-19 death, where 61.01% of patients are 60+ year olds.¹⁶ The male (71%) is more affected by COVID-19 than the woman in Bangladesh. A total of 27 % of people with age ranges 31-40-year-old are more dramatic in COVID-19 in Bangladesh. Khagrachari is a hilly district of Bangladesh located in the eastern part of the country where 52% of this district are three major tribal communities; Chakma, Marma, and Tripura¹⁸. It is one of the backward districts of Bangladesh.

The medical and commination infrastructure is not well developed. But there was 773 confirmed COVID-19 case by 3rd May 2021¹⁶, and it is one of the fewer COVID-19 affected districts of Bangladesh. Usually, tribal people are not concern about and medical-related problems. They are apathetic about health until there are any medical emergency occurs. The tribal community has a different lifestyle pattern, partially isolated from the rest of the population. Now a COVID-19 pandemic is ongoing, which creates a new condition for the whole world. So the government is trying to stop this pandemic, providing to raise public awareness and knowledge which are some of the significant keys to control this pandemic. In this situation, this study aims to find out the current knowledge, understanding, and perception towards COVID-19 among the tribal people.

METHODS

Study area

This research has been conducted in the Khagrachari hill district of Bangladesh, situated between 91.42' to 92.11' East longitude and 22.38' to 23.44' North latitude and is also bordered by North-North-West Tripura of India. The Khagrachari has a land area of 2700 km² and a population of 5,18,463 inhabitants (Figure 1).¹⁹

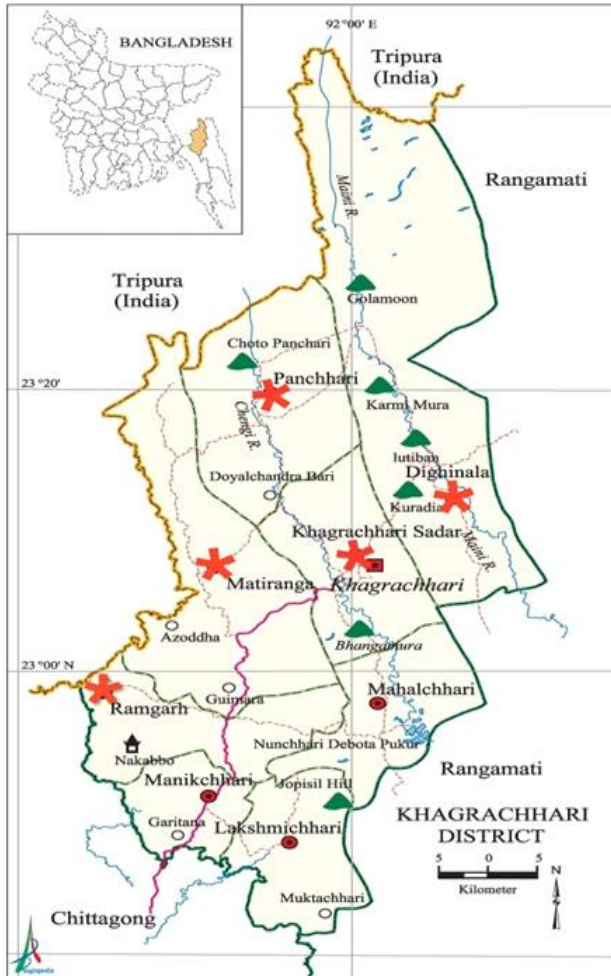


Figure 1: The map of Khagrachhari district (the red star marked areas are the study spots).

Study design

From November 2020 to December 2020, a community-based cross-sectional survey was conducted across the Khagrachhari district using a pre-tested questionnaire to investigate COVID-19 knowledge, awareness, and perceptions. People from three tribal communities (Chakma, Marma, Tripura) whose age range is 15+ years old and willing to give information were considered our target responder. A simple random sampling technique was followed for this study.

Data collection

A trained survey team visit door to door to collect information from responders during the study period. Only the willingly responding participants are interviewed according to the survey questioners by the survey team. A total of 348 responders were interviewed - where 131 (male 71, female 59) participants were Chakma, 106 (male 56, female 50) participants were Marma, and 111 (male 51, female 60) participants were Tripura.

Outcome measures

There are language barriers because the tribes have their mother language, which is different from the national language (Bangla) of Bangladesh. But the survey form questionnaires are developed in the Bangla language. Most of them can talk and understand Bangla, but many tribal people can't even read or speak in Bangla. To overcome this problem, some local interpreter's bits of help were taken. Some teams were tried to explain in their way.

Data analysis

The data collected from the survey was inputted in statistical package for social science (SPSS) version 20 (for Windows operating system). This software did all statistical analysis. The graphical plots were made by Microsoft excel 2013 software. No personal identifiable was collected. Before starting the interview, a piece of detailed information about the study was given to the responder. The responder was allowed to withdraw him/herself anytime from this study.

RESULTS

A total of 348 responses were collected where 131, 106, and 111 participants were Chakma, Marma, and Tripura, respectively. Overall, most of our responders are in the age range of 31-45 years; and 54.4% were in this age group. Our study also showed that maximum people are illiterate; among them, the female rate is higher than male. The community-wise demographical data was shown in (Table 1). The exact knowledge about the cause of COVID-19, where all three study groups knowing it is a viral disease among them, 87.0% Chakma showed a maximum response (Table 2). On the other hand, COVID-19 is considered a deathly disease by 54.2% Chakma, 53.8% Marma, and 60.4% Tripura. But, surprisingly, fewer people are known to vaccination as a preventive measure.

The practice measurement to avoid COVID-19 infection is shown in (Table 3). The data indicate that using a facing mask as a safety measurement, about 87% of Chakma, 85% of Marma, and 81.1% of Tripura used masks regularly. In addition, a small population did not use the mask. But the tendency to use hand sanitizer or soap was slightly low compared to using a facemask while 60.3% Chakma, 59.4% Marma, and 58.5% Tripura were use soap for hand sanitizing. But it is a fantastic fact that maximum (92.5%) Marma groups practiced proper hygiene management as well as other study groups. Like other countries, Bangladesh started the COVID-19 vaccination process. The tribal people's perception of the COVID-19 vaccine is shown in (Table 3). The data mentioned that Chakma (79.4%), Marma (66.0%), and Tripura (76.6%) were eager to take a vaccine at a particular time. But it seems they are not optimistic about the efficacy of the vaccine. Only 23.7% of Chakma,

15.1% of Marma, and 19.8% of Tripura are optimistic about vaccine success. Surprisingly, they don't think Bats are the primary source of SARS-CoV-2. Only 0.8% of Chakma believed that SARS-CoV-2 transmitted to humans from Bats while 95.4% Chakma, 98.1% Marma,

and 97.3% of Tripura think it a natural virus, not a human-made virus. Most of them were not hopeful about ending this pandemic. The ongoing pandemic will not end soon; this was believed by 45.0% of Chakma, 52.8% of Marma, and 55.0% of Tripura (Table 5).

Table 1: Sociodemographic status of the study population.

Variables	Chakma (N=131)				Marma (N=106)				Tripura (N=111)			
	Male (n=72)		Female (n=59)		Male		Female		Male (n=51)		Female (n=60)	
	F	%	F	%	F	%	F	%	F	%	F	%
Education												
Illiterate	23	31.9	24	40.7	24	42.9	24	48.0	17	33.3	26	43.3
Primary	14	19.4	9	15.3	2	3.6	9	18.0	12	23.5	14	23.3
Secondary	24	33.3	18	30.5	20	35.7	12	24.0	15	29.4	16	26.7
Higher-secondary	4	5.6	4	6.8	5	8.9	3	6.0	3	5.9	2	3.3
Above	7	9.7	4	6.8	5	8.9	2	4.0	4	7.8	2	3.3
Occupation												
Housewife	0	0.0	29	49.2	0	0.0	21	42.0	0	0.0	24	40.0
Job	8	11.1	3	5.1	8	14.3	4	8.0	5	9.8	5	8.3
Businessman	37	51.4	12	20.3	21	37.5	6	12.0	16	31.4	9	15.0
Daily earner	9	12.5	0	0.0	11	19.6	2	4.0	10	19.6	4	6.7
Farmer	4	5.6	0	0.0	5	8.9	4	8.0	7	17.6	7	11.7
Student	7	9.7	11	18.6	4	7.1	8	16.0	8	15.7	9	15.0
Unemployed	7	9.7	4	6.8	7	12.5	5	10.0	3	5.9	2	3.3
Living area												
Rural	46	63.9	44	74.6	39	69.3	34	68.0	35	58.6	41	58.3
Urban	26	36.1	15	25.4	17	30.4	16	32.0	16	31.4	19	31.7
Marital status												
Unmarried	11	15.3	14	23.7	6	10.7	6	12.0	10	19.6	9	15.0
Married	61	84.7	45	76.3	50	89.3	44	88.0	41	80.4	50	83.3
Separated	00	0.0	00	0.0	00	0.0	00	0.0	0	0.0	1	0.9

Table 2: Knowledge about COVID-19.

Variables	Chakma (N=131)		Marma (N=106)		Tripura (N=111)	
	Frequency	%	Frequency	%	Frequency	%
The cause of COVID-19						
Virus	114	87.0	91	85.0	90	81.1
Bacteria	13	9.9	15	14.2	21	18.9
Fungi	4	3.1	0	0.0	0	0.0
Miscellaneous	0	0.0	0	0.0	0	0.0
It is deadly disease						
No	46	35.1	42	39.6	38	34.2
Yes	71	54.2	57	53.8	67	60.4
Sometime	14	10.7	7	6.6	6	5.4
Flu and COVID-19 is same						
No difference	8	6.1	5	5.7	5	4.5
Totally different	29	22.1	16	15.1	21	18.9
Don't know	94	71.8	84	79.2	85	76.6
How COVID-19 spread						
Close contact	113	86.3	88	83.0	97	87.4
Respiratory droplet	5	3.8	5	4.7	6	5.4
Airborne	9	6.9	8	7.5	7	6.3
Cough, sneezes	4	3.1	5	4.7	1	0.9
Blood borne	0	0.0	0	0.0	0	0.0
Symptoms; common cold	10	7.6	4	3.8	13	11.7

Continued.

Variables	Chakma (N=131)		Marma (N=106)		Tripura (N=111)	
Fever	6	4.6	8	7.5	3	2.7
Cough	1	0.8	4	3.8	1	0.9
Shortness of breathing	0	0.0	1	0.9	0	0.0
All above	114	87.0	89	84.0	94	84.7
Treatment; antiviral	24	18.3	12	11.3	17	15.3
No treatment	9	6.9	12	11.3	9	8.1
Don't know	98	74.8	82	77.4	85	76.6
COVID-19 cause long term affect						
No	2	1.5	3	2.8	1	0.9
Yes	3	2.3	2	1.9	2	1.8
Not sure	126	96.2	101	95.3	108	
Are you know about antigen/antibody test						
No	90	68.7	77	72.6	78	70.3
Yes	41	31.3	29	27.4	33	29.7
Prevention						
Ware mask	38	29.0	40	37.7	33	29.7
Vaccination	0	0.0	0	0.0	4	3.6
Hygiene	4	3.1	8	7.5	9	8.1
Avoid mass gathering	5	3.8	2	1.9	1	0.9
Avoid close contact	4	3.1	0	0.0	1	0.9
All above	80	61.1	56	52.8	63	56.8
It can affect second time						
No	19	14.5	13	12.3	18	16.2
Yes	44	33.6	50	47.2	49	44.1
Not sure	68	51.9	43	40.6	44	39.6
Social responsibility						
Spread awareness	45	34.4	50	47.2	47	42.3
Seek immediate	1	0.8	0	0.0	2	1.8
Symptoms	3	2.3	2	1.9	1	0.9
Take vaccine	2	1.5	4	3.8	3	2.7
All above	80	61.1	50	47.2	58	52.3

Table 3: Practice to avoid COVID-19.

Variables	Chakma (N=131)		Marma (N=106)		Tripura (N=111)	
	Frequency	%	Frequency	%	Frequency	%
Use face mask						
No	1	0.8	3	2.8	2	1.8
Yes	114	87.0	91	85.8	90	81.1
Occasionally	16	12.2	12	11.3	19	17.1
Use hand sanitizer/soap						
No	2	1.5	3	2.8	2	1.8
Yes	79	60.3	63	59.4	65	58.5
Occasionally	50	38.2	37	37.7	44	39.6
Proper hygiene practice						
No	15	11.5	8	7.5	8	7.2
Yes	116	88.5	98	92.5	103	91.1

Table 4: Perception about COVID-19 vaccine.

Variables	Chakma (N=131)		Marma (N=106)		Tripura (N=111)	
	Frequency	%	Frequency	%	Frequency	%
Will you get vaccine						
No	0	0.0	1	0.9	1	0.9
Yes	22	16.8	21	19.8	17	15.3

Continued.

Variables	Chakma (N=131)		Marma (N=106)		Tripura (N=111)	
Not sure	89	67.9	63	59.4	79	71.2
After long time	20	15.3	21	19.8	14	12.6
Will you take vaccine						
No	8	6.1	16	15.1	8	5.4
Yes	104	79.4	70	66.0	85	76.6
Not sure	19	14.5	20	18.9	20	17.0
Are you optimistic about vaccine						
No	2	1.5	2	1.9	0	0.0
Yes	31	23.7	16	15.1	22	19.8
Not sure	98	74.8	88	83.0	89	80.2

Table 5: Perception about SARS-2 virus and this ongoing COVID-19 pandemic.

Variables	Chakma (N=131)		Marma (N=106)		Tripura (N=111)	
	Frequency	%	Frequency	%	Frequency	%
Bat is the main source of this virus						
No	4	3.1	2	1.9	8	7.2
Yes	1	0.8	0	0.0	0	0.0
Not sure	125	96.2	104	98.1	103	92.8
SARS-2 virus came from bat to human						
Eating	13	9.9	10	9.4	10	9.0
Direct contact	0	0.0	5	4.7	2	1.8
Extract	1	0.8	0	0.0	1	0.9
Dot not know	117	89.3	91	85.8	98	88.3
It is a						
Natural virus	125	95.4	104	98.1	108	97.3
Manmade virus	6	4.6	2	1.9	3	2.7
It will be end soon						
No	59	45.0	56	52.8	61	55.0
Yes	0	0.0	0	0.0	0	0.0
Not sure	63	48.1	46	43.4	43	38.7
After vaccination	9	6.9	4	3.8	7	5.7

DISCUSSION

The SARS-CoV-2 virus is responsible for the ongoing pandemic. In December 2019, the first case was reported in Wuhan, Hubei Province, China. Officially first public message about early signs of a new mystery novel viral disease outbreak in the Wuhan city was given by 'the Wuhan municipal health commission' on 31 December 2019.²⁰ Since SARS-CoV-2 is a very contagious virus and can spread from the affected person before showing any symptoms, it spread worldwide before taking any action against it. It was a novel virus with providing no information was available at that time. The undiscovered features also helped the virus to spread worldwide. Awareness, proper hygiene practice is helping to prevent the spread of this virus. Several studies have been conducted linked to the knowledge and understanding of SARS-COV-2 in various populations in Bangladesh. Asif et al. stated that 320 (87.19%) people knew COVID-19 is a viral disease, and 320 (48.75%) knew it transmits through coughs that support our result in this study.²¹ Knowledge about this helps keep any situation under

control since COVID-19 is a new disease. Appropriate knowledge is required to retain this pandemic under control and prevent public fear about this disease.

We designed our questioners to get accurate information about their learning by using data from WHO, and the Ministry of Health and Family Welfare, Bangladesh. Many participants of our study have the knowledge and proper perception towards COVID-19. They don't know the exact cause of disease progression but hearing that COVID-19 is a viral disease. It is a surprise that they don't know what a virus is! maximum knowing that it spread by close contact as well as respiratory droplet, airborne, cough and bloodborne. Multiple studies reported the mechanism of disease in China that supported our investigation.²² There are a very few participants said that the COVID-19 and the normal flu has similar, while a higher number of peoples does not know the treatment management among them Marma showed a high response (77.4%).

The rate of wearing masks is high in this district. Personal awareness and the strict action of local authorities may boost the high rate of the aware mask. On the contrary, the use of hand sanitizer/soap rate is increased about 60.3% in Chakma peoples compare to other groups. Overall, many people maintain proper hygiene practice where Marma showed 98 (92.5%). Several studies were conducted on practice to avoid covid 19. Following this protocol, Zannatul et al conducted an online-based cross-sectional study and revealed that almost all (98.7%) participants used a face mask regularly and 93.8% maintained washing hands with soap and water.²³ But they have an apposite attitude towards taking the COVID-19 vaccine. They are not optimistic about the efficacy of this vaccine. Ali et al conducted a cross-sectional rapid national survey where a total of 1134 participants from the general population, aged 18 years and above mentioned that 32.5% of participants showed COVID-19 vaccine hesitancy in Bangladesh.²⁴ Malaria is a common disease in this district. So the previous experience about malaria, the triable people are not hopeful about the soon ending of this pandemic. 45.0% Chakma, 52.8% Marma, and 55.0% Tripura said the COVID19 would remain, but the intensity or fatality will be negligible. A case report study of recurrent COVID-19 infection demonstrated that “Retest Positive” for SARS-CoV-2 from “recovered” patients (COVID-19), which raised several questions for the COVID-19 disease.²⁵ The three tribes have different cultures, but their life pattern and social interaction are similar. Their knowledge-gathering ways and belief in their knowledge about COVID-19 are also identical. According to the 2011 census, the population of this district is 518,463; among them, 269,904 are tribal, which represent 52% population of this district.¹⁸ In most cases, COVID-19 is not fatal; the patient recovered after a few weeks without any complication.

A person of any age and any health condition can be affected by COVID-19, and the situation can be difficult to fatal. But people with comorbidity and older peoples are at high risk of COVID-19 severe condition. At present world try to defect the COVID-19. Governments, many global and local organizations are working to prevent the spread of the virus. They are trying to raise awareness, spread bits of knowledge, and change general people’s attitudes and behaviors.

The tribal lifestyle, belief, culture is different from the rest of the country’s population. Standard time many initiatives taken by the people republic of Bangladesh Government could not reach them. The current pandemic is new for all, and initiatives and requirements are unique for all. We are all forced to adapt to this unusual situation. So here we try to present that how much the tribal population cap with this situation. Our study represented theirs knowledge about this pandemic, perceptions towards COVID-19 vaccine, and practice to prevent infection.

CONCLUSION

Individual awareness, optimistic attitudes, practices of suggested preventative measures, and health advisories are critical in regulating the malicious population transmission of COVID-19 in a resource-constrained country like Bangladesh. The participant of our study has pretty good knowledge about COVID-19. They have a positive attitude to take the vaccine and maintain personal hygiene, which can significantly prevent COVID-19, and most people use masks regularly. Based on our study result and accounting for the number of confirmed COVID-19 cases of this district, we can say that tribal is concerned about COVID-19. And they are maintaining the guidelines given by the Bangladesh government for COVID-19 prevention. Additional study on explanatory issues related to activity, function, social issues, and quality of life may provide some insight on the biopsychological impact of COVID-19 in the remote area of Bangladesh.

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