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Yeny Tejada López

*Universidad Cesar Vallejo, Perú., lapoeta17@gmail.com*

Evelyn del Socorro Goicochea Ríos

Olga Y. Guzmán Aybar

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# CLINICAL EPIDEMIOLOGICAL CHARACTERISTICS OF PATIENTS DIAGNOSED WITH SARS-CoV-2. HOSPITAL I FLORENCIA DE MORA ESSALUD – LA LIBERTAD, 2020

CARACTERÍSTICAS CLÍNICO EPIDEMIOLÓGICAS DE PACIENTES CON DIAGNÓSTICO DE SARS-CoV-2. HOSPITAL I FLORENCIA DE MORA ESSALUD – LA LIBERTAD, 2020

Yeny Ofelia Tejada-López<sup>1,a</sup>, Evelyn del Socorro Goicochea-Ríos<sup>1,b</sup>,  
Olga Yanet Guzmán-Aybar<sup>1,c</sup>

## ABSTRACT

**Introduction:** The SARS-CoV-2 pandemic affected a large part of the population of La Libertad, among them, the population of Florencia de Mora whose hospital played an important role in the care of patients diagnosed with COVID-19. **Objectives:** To determine the epidemiological clinical characteristics of patients diagnosed with SARS-CoV-2 treated at treated at the center. **Methods:** Retrospective observational descriptive study, with a population of 2622 patients treated in the COVID Triage, considering the molecular test and the rapid serological test for the detection of SARS-CoV-2. **Results:** SARS-CoV-2 was detected in 74.90% (1155), the months with the highest number of cases were June and July with 29.4% (340) and 37.4% (432) respectively, the predominant age group was 27- 59 years with 77.9% (900) and males with 57.5% (664). Regarding the clinical profile, the most frequent comorbidity was arterial hypertension with 6.9% (80), obesity and overweight with 3.7% (43) and the most frequent symptoms were: cough 62.9% (726) and odynophagia 55.7% (643). **Conclusions:** 75 out of 100 screened patients had SARS-CoV-2; predominantly males, the age group of 27-59 years, hypertension, obesity and overweight as comorbidity, cough and odynophagia as the most frequent symptoms.

**Key words:** Epidemiology; Clinical picture; Prevalence; SARS-CoV-2 (source: MeSH NLM).

## RESUMEN

**Introducción:** La pandemia por SARS-CoV-2 afectó a gran parte de la población liberteña, entre ellas, la población de Florencia de Mora, cuyo hospital tuvo un importante rol en la atención de pacientes con diagnóstico de COVID-19. **Ojetivos:** Determinar las características clínico-epidemiológicas de los pacientes con diagnóstico por SARS-CoV-2 atendidos en dicho centro asistencial. **Métodos:** Estudio descriptivo observacional, retrospectivo, con una población de 2622 pacientes atendidos en el triaje de COVID-19, considerando la prueba molecular y la prueba serológica rápida para la detección de SARS-CoV-2. **Resultados:** Se detectó SARS-CoV-2 en 74.90% (1155) de los pacientes. Los meses con mayor número de casos fueron junio y julio con el 29.4% (340) y 37.4% (432), respectivamente. El grupo etario predominante fue de 27-59 años con el 77.9% (900), así como el sexo masculino con un 57.5% (664). En cuanto al perfil clínico, la comorbilidad más frecuente fue la hipertensión arterial con 6.9% (80), la obesidad y sobrepeso con 3.7% (43); mientras que la sintomatología más frecuente fue la tos con 62.9% (726), y la odinofagia con 55.7% (643). **Conclusión:** 75 de cada 100 pacientes tamizados tuvieron SARS-CoV-2; predominando el sexo masculino, el grupo etario de 27-59 años, hipertensión arterial, obesidad y sobrepeso como comorbilidad, tos y la odinofagia como síntomas más frecuentes.

**Palabras clave:** Epidemiología; Cuadro clínico; Prevalencia; SARS-CoV-2 (fuente: DeCS BIREME).

<sup>1</sup> Universidad Cesar Vallejo, Perú.

<sup>a</sup> Third Year Resident, Family and Community Medicine.

<sup>b</sup> Family Medicine Specialist.

<sup>c</sup> Family and Community Medicine Specialist.

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## INTRODUCTION

SARS-CoV was responsible of the first pandemic in the XXI century which extended to 29 countries, reaching a mortality of 9.6%. The second pandemic was caused by MERS-CoV in 2012 in the Middle East, reaching a mortality of 34.4%<sup>(1)</sup>. In January 2020, the World Health Organization (WHO) declared a Health Emergency<sup>(1,2)</sup> and two months later it was considered a global pandemic due to COVID 19<sup>(3)</sup>.

The human coronavirus strains are transmitted during winter and are responsible for the common cold<sup>(1,4,5)</sup>, otitis media in children, and pneumonia<sup>(4,5)</sup>, others are highly pathogenic, responsible for severe acute respiratory syndrome and Middle East Respiratory syndrome, respectively<sup>(5,6)</sup>.

SARS-CoV-2 is a beta-coronavirus that is transmitted by airway<sup>(1,4)</sup>, through fomites<sup>(4)</sup>, fecal oral<sup>(7,8)</sup>, and maternal-fetal<sup>(9)</sup>. The airway route is the main mode of transmission through flügge droplets that are spread up to two meters when speaking, sneezing, or coughing, and remain in the air for over 17 minutes<sup>(1,4,10)</sup>. The fomite mode of transmission is due to the virus remaining on smooth surfaces, from 4 hours<sup>(1)</sup> to 5 days depending on the type of material<sup>(4,11)</sup>; likewise, the oral fecal route is justified by the presence of viral RNA in feces (even with a negative nasopharyngeal smear<sup>(9)</sup>) and the result of infectious aerosols in the toilet, leading to a fomite transmission. Regarding maternal-fecal material, although it has not been proven yet, it still cannot be ruled out<sup>(9)</sup>.

The SARS-CoV-2 virus enters our organism through the nose, mouth or eyes, and enters the cell through the angiotensin-converting enzyme receptor (ACE2)<sup>(1,10-12)</sup>; which is found in the pulmonary cytoplasmic membranes AT2, as well as ileum and colon cells, where they replicate<sup>(11)</sup>. The incubation period is 3 to 9 days, with the maximum viral load 2.5 days before symptoms appear<sup>(10)</sup>.

The most frequent symptomatology is fever, cough, myalgia or fatigue, dyspnea, 1,8,10,11,13 sore throat, diarrhea, nausea and vomiting<sup>(1,8,10,11)</sup>, abdominal pain<sup>(8,10,13)</sup>, anorexia, dizziness, headache, altered sense of taste and smell<sup>(9,11)</sup>, arthralgias<sup>(12)</sup>, impaired consciousness, and urticarial or vesicular eruptions and purpura<sup>(11)</sup>. These are resolved after 10 to 15 days, but the viral shedding continues<sup>(1)</sup>.

Hospital I Florencia de Mora EsSalud was not included as a reference center for SARS-CoV-2 in

Trujillo, however, due to the spread this virus has and the saturation of reference hospitals, it played an important role in offering health services for care of patients with COVID-19. Based on this, the objective of this study is to determine the clinical and epidemiological characteristics of patients diagnosed with SARS-CoV2.

## METHODS

### Design and area of study

A retrospective, observational, descriptive study, from the review of the archive management system of EsSalud, of patients treated in COVID triage in Hospital I Florencia de Mora (HIFM).

### Population and sample

The population included 2622 patients defined as suspicious treated in COVID-19 triage of HIFM-EsSalud, La Libertad, during March to August 2020. We included patients diagnosed with COVID-19 confirmed with serologic or molecular testing, and patients who were not found during the control and follow-up calls were excluded, as well as those who requested voluntary withdrawal.

### Variables and instruments

To assess the clinical epidemiological characteristics. confirmed cases were determined by positive serological and molecular tests, according to the definition in the official epidemiological alert. Regarding epidemiological characteristics, we considered age, origin and sex, while in clinical characteristics, symptoms and comorbidity were included.

### Procedures

After obtaining permission from the institution, we proceeded to review the epidemiological sheets downloaded from NotiWeb, entering each sheet into a database for the epidemiological surveillance of each patient.

### Statistical analysis

Through epidemiological surveillance, the descriptive statistic, the information was analyzed creating frequency tables with single and double entry, with their absolute and relative values.

### Ethical aspects

In HIFM - EsSalud there is no ethical committee, which is why we counted with the approval of assistance service and the coordinator of hospital

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training, keeping confidentiality of sensitive data and anonymity in data collection, of which only research personnel had access.

## RESULTS

Out of a total of 2622 treated in COVID-19 triage

of HIFM - EsSalud, only 58.85% (1543) underwent screening with the serological test method 94.5 % (1458), while molecular tests were 5.5% (85). Among the participants, 74.9% (1155) were diagnosed with SARS-CoV-2. It is important to mention that 5.54% (64) were hospitalized and 1.99% (23) died.

**Table 1.** Distribution of patients screened for SARS-CoV- 2, according to test type, from the Hospital I Florencia de Mora - EsSalud - La Libertad, 2020.

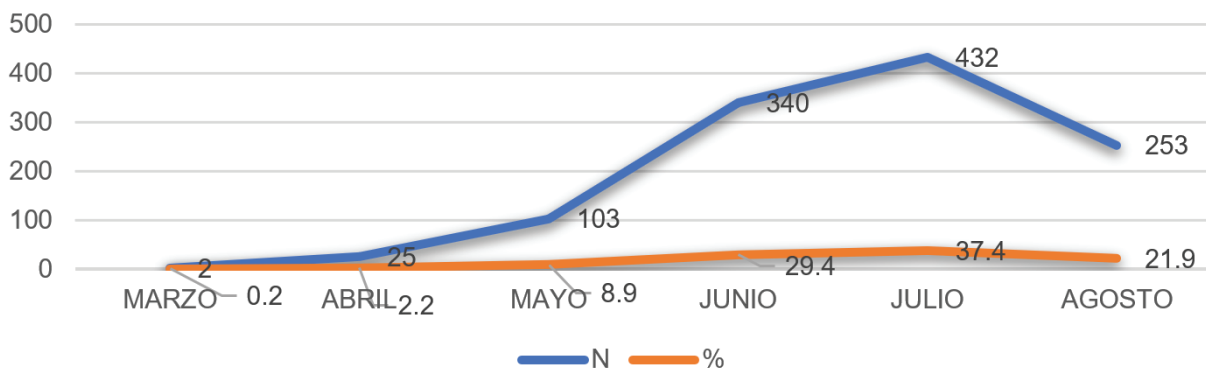
Type of test	Serological		RT-PCR		Total	
	N	%	N	%	N	%
Reactive						
IGM	138	8,9				
IGM/IGG	719	46,6	65	4,2	1155	74,9
IGG	233	15,1				
	1090	70,6				
Not reactive	368	23,9	20	1,3	388	25,1
<b>Total</b>	1458	94,5	85	5,5	1543	100

Source: Epidemiological area of HIFM.

In Graph 1, we observe the COVID 19 cases according to month of screening, finding that the months with

most cases were June and July, with 29.4% (340) and 37.4% (432), respectively.

**CASOS DE COVID 19 SEGÚN MES DE DIAGNÓSTICO**



**Graphic 1.** COVID-19 cases according to month of diagnosis in Hospital I Florencia de Mora, La Libertad, 2020.

In Table 2, the variables age and sex pertaining to the epidemiological characteristics are found, with the most frequent age group 27-59 years, with 77.9%

(900), and a mean age of 43.5 years ± 14.8. The most frequent sex was masculine, with 57.5% (664).



**Table 2.** Patients with SARS-CoV-2 diagnosis, according to age group and sex, of Hospital I Florencia de Mora – EsSalud, La Libertad, 2020.

Age group	Feminine		Masculine		Total	
	N	%	N	%	N	%
1-4	1	0,1	1	0,1	2	0,2
5-11	4	0,3	5	0,4	9	0,8
12-17	7	0,6	9	0,8	16	1,4
18-26	37	3,2	41	3,5	78	6,8
27-59	371	32,1	529	45,8	900	77,9
>60	71	6,1	79	6,8	150	13,0
<b>Total</b>	491	42,5	664	57,5	1155	100,0

Source: Epidemiological area of Hospital I Florencia de Mora.

26.1% of patients with SARS-CoV-2 presented some type of morbidity, with hypertension as the most frequent 6.9% (80), obesity and overweight was

found in second place, with 3.7% (43). 73.9% (853) of patients did not present comorbidities.

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**Table 3.** Distribution of 1155 patients with SARS-CoV-2 diagnosis, according to comorbidity, from Hospital I Florencia de Mora – EsSalud, La Libertad, 2020.

Comorbidity	N	%
Hypertension	80	6,9
Obesity and overweight	43	3,7
Diabetes mellitus	35	3,0
Asthma	32	2,8
Hypertension and Diabetes Mellitus	26	2,3
Digestive System Disease	14	1,2
Interstitial lung and chronic obstructive disease	12	1,0
Cancer	10	0,9
Two or more diseases	10	0,9
Hypothyroidism	9	0,8
Neurologic Disease	8	0,7
Others	8	0,7
Osteomuscular Disease	6	0,5
Other respiratory diseases	5	0,4
Chronic renal disease	4	0,3
Without comorbidity	853	73,9
<b>Total</b>	1155	100,0

Source: Epidemiological area of Hospital I Florencia de Mora.

85% (982) of patients with SARS-CoV-2 presented symptoms. Symptoms according to age group are shown in table 5, the most frequent was cough with 62.9% (726) and odynophagia with 55.7% (643). In the age group of 6-11 years, the most frequent

symptom was nasal congestion with 0.4% (5), in the 18-26 years group was odynophagia 4.1% (47), while in the 12-17 years age group, 27- 59 years, and over 60 years was cough with 0.9% (10), 47.6% (550) and 10.4% (120), respectively.

**Table 4.** Distribution of 1155 patients with SARS-CoV-2 diagnosis, according to symptoms and age group, of Hospital I Florencia de Mora EsSalud, La Libertad, 2020.

Symptoms	1-5 years		6-11 years		12-17 years		18-26 years		27-59 years		>60 years		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Cough	1	0,1	4	0,3	10	0,9	41	3,5	550	47,6	120	10,4	726	62,9
Odynophagia	1	0,1	4	0,3	5	0,4	47	4,1	496	42,9	90	7,8	643	55,7
General malaise	1	0,1	3	0,3	7	0,6	33	2,9	427	37,0	88	7,6	559	48,4
Headache	0	0,0	2	0,2	6	0,5	41	3,5	415	35,9	60	5,2	524	45,4
Fever	1	0,1	3	0,3	5	0,4	29	2,5	385	33,3	71	6,1	494	42,8
Myalgia	0	0,0	3	0,3	5	0,4	24	2,1	370	32,0	67	5,8	469	40,6
Chest pain	1	0,1	1	0,1	4	0,3	18	1,6	266	23,0	44	3,8	334	28,9
Nasal congestion	1	0,1	5	0,4	7	0,6	30	2,6	254	22,0	37	3,2	334	28,9
Difficulty breathing	0	0,0	0	0,0	1	0,1	5	0,4	211	18,3	72	6,2	289	25,0
Diarrhea	1	0,1	2	0,2	2	0,2	8	0,7	182	15,8	26	2,3	221	19,1
Anosmia	0	0,0	0	0,0	5	0,4	13	1,1	177	15,3	18	1,6	213	18,4
Ageusia	0	0,0	0	0,0	5	0,4	13	1,1	177	15,3	18	1,6	213	18,4
Nausea	0	0,0	0	0,0	0	0,0	5	0,4	79	6,8	12	1,0	96	8,3
Joint pain	0	0,0	0	0,0	1	0,1	0	0,0	50	4,3	11	1,0	62	5,4
Abdominal pain	0	0,0	1	0,1	2	0,2	4	0,3	22	1,9	3	0,3	32	2,8
Other	0	0,0	1	0,1	4	0,3	0	0,0	17	1,5	7	0,6	29	2,5

Source: Epidemiology area of Hospital I Florencia de Mora.

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## DISCUSSION

In this study we performed a screening of 1543 (58.9%) people who visited the differentiated triage for COVID-19, in Hospital I Florencia de Mora. We found that 75 out of 100 patients screened had COVID-19, a result similar to 70.07% (192) reported in the study by Villagrán-Olivas K (Mexico)<sup>(14)</sup>, and greater than 22.66% (349) by Vila-Córcoles A. (Spain)<sup>(15)</sup>. Both studies opted for the molecular test for the screening since they were sensitive and specific, as well as because they had no cross reactivity with respiratory viruses<sup>(16)</sup>. However, Villagrán-Olivas K<sup>(14)</sup> used a population of 242 suspected cases, while Vila-Córcoles A<sup>(15)</sup>, despite included a population of 79 071 patients, only screened 2% (1547).

However, our country opted to diagnose with rapid serologic tests that are economical, easy and simple to use<sup>(16)</sup>, these detect IgM and IgG antibodies, present in up to 40% in the first week from the start of symptoms and reach up to 100% by day 15<sup>(17)</sup>. Despite that Sánchez C (Lima-Perú)<sup>(18)</sup> used the same diagnostic test, he included health personnel in his study population, and reported 25.6% (1112). This difference may occur since the population studied was more exposed, unlike our study, in which we opted to wait for isolation time for screening, which would allow for more confirmed cases to be presented.

With regard to months with greater reported cases, these were June and July with 29.4% (340) and 37.2% (432). These results coincide with the months of greater positivity in the department of La Libertad<sup>(19)</sup>.

Among the epidemiological characteristics, the most frequent sex was masculine with 57.5% (664). This result is consistent with the reports by Villagrán-Olivas K (Mexico)<sup>(14)</sup> with 59.38% (114), Ferrer J. (Cuba) with 52.7(71)<sup>(20)</sup> in hospitalized patients, and Llaro-Sánchez M(Lima-Perú) con 69.57%(16)<sup>(21)</sup> in deceased patients. However, they differ with what was found by Vila-Córcoles A. (Spain)<sup>(15)</sup>, Sánchez C. (Lima-Peru)<sup>(18)</sup> and Guzmán-Del Giudice O. (Lima-Peru)<sup>(22)</sup>, who found that the feminine sex was the most frequent with 59% (206) ,71.7% (797), and 52% (13), respectively. This is because men are more predisposed to contracting COVID-19 due to their greatest habit to tobacco, concomitant diseases<sup>(23,24)</sup>, and exposure to risk determinants, however, these results are not conclusive<sup>(23)</sup>.

The most frequent age group were adults, with 77.9% (900). These findings coincide with Villagrán-

Olivas K (Mexico)<sup>(14)</sup>, Sánchez C (Lima-Peru)<sup>(18)</sup> and Guzmán-Del Giudice O(Lima-Peru)<sup>(22)</sup>, while studies with deceased patients such as Llaro-Sánchez M(Lima-Peru)<sup>(21)</sup> and Escobar G(Lima-Peru)<sup>(25)</sup> the frequent age group were older adults. This difference is due because older adults have a high fatality rate due to their immune system deficit, associated to concomitant diseases, which would justify the frequency of studies with deceased patients<sup>(26)</sup>, while in young adults are more immersed in the labor and social sector, which justifies their frequency in our study<sup>(14)</sup>.

Within the clinical profile, the most frequent comorbidity was hypertension with 6.9% (80). This coincides with Vila-Córcoles A. (Spain)<sup>(15)</sup> and Escobar G. (Lima-Peru)<sup>(25)</sup>; while it differs from that reported by Villagrán-Olivas K (Mexico)<sup>(14)</sup> and Sánchez C (Lima-Peru)<sup>(18)</sup>, where the most frequent comorbidity was obesity. This is because hypertensive patients consume medications such as ACE inhibitors and ARA which increase the levels of ACE2, receptors also found in the heart and blood vessels, which would facilitate the entry of virus into cells<sup>(12)</sup>.

In our study, obesity was the second most frequent comorbidity with 3.7% (43), unlike 33.3% (64) referred in the work by Villagrán-Olivas K., who carried out the study in Mexico, a country where obesity is found among the first places in the world<sup>(14)</sup>, while Sánchez C. carried out their study with health personnel, who due to their routine they had no healthy habits, which is why obesity is present among them.

Among the symptoms, the most frequent were cough with 62.9% (726), odynophagia 55.7% (643), and general malaise 48.4% (559). This result differed from Villagrán-Olivas K. (Mexico)<sup>(14)</sup> and Guzmán-Del Giudice O. (Lima-Peru)<sup>(23)</sup>, who reported fever and cough as the most frequent symptoms. This is because they included hospitalized patients in their sample. Likewise, it partially coincides with the review by Ferrer J. (Cuba)<sup>(20)</sup>, whose study reported cough and fever in patients of all ages, as in this research.

We must mention the insufficient supply of molecular tests as a study limitation, which could have conditioned a sub registry of positive cases of COVID-19 in the 2622 patients who were screened in the differentiated triage. Likewise, the follow-up of some patients was difficult because they did not answer the telephone or because they were hospitalized.

## CONCLUSIÓN

To conclude, we must point out that 75 out of 100 screened patients in our research had SARS-CoV-2,

with predominance of the masculine sex, age group 27-59 years, hypertension as comorbidity, and cough and odynophagia as the most frequent symptoms.

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**Authorship contributions:** Yeny Ofelia Tejada López was in charge of collecting, tabulating and analyzing data, while Evelyn del Socorro Goicochea Ríos was in charge of drafting with critical thinking and approving that final article. Olga Guzmán Aybar participated in research advising.

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*Correspondence:* Yeny Ofelia Tejada López

*Address:* David Lozano Manzana l lote 24 - Urb El Bosque -Trujillo

*Telephone:* 958400033

*E-mail:* lapoeta17@gmail.com





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