



Research Article

Accessibility to Interdisciplinary Treatment in Individuals with Cleft Lip and/or Palate in Medellín, Colombia, 2021

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Abstract

Background: Individuals with cleft lip and/or palate are a vulnerable population that required interdisciplinary treatment during childhood, adolescence, and early adulthood. **Objective:** To determine the relationship between socio-demographic, socio-economic conditions, cleft diagnoses, legal and administrative procedures, Covid-19 accessibility barriers, the opportunity of health care, physical, economic and information accessibility with interdisciplinary treatment in cleft lip and/or palate (CLP) population in Medellín in 2021. **Design:** A cross-sectional questionnaire-based study was performed. One hundred thirty eight 0-21 years old participants with CLP were recruited from two insurance health carriers in Medellín-Colombia, 2021. The participants answered a survey to assess the interdisciplinary treatment of CL/P concerning socio-demographic, socio-economic conditions, cleft diagnoses, legal and administrative procedures, Covid-19 accessibility barriers, the opportunity of health care, physical, economic and information accessibility. Data were analyzed with descriptive and bivariate tests. PR was calculated with its confidence intervals. **Results:** A significant association was found between accessing interdisciplinary CLP treatment and considering the mother's education, mother's and father's occupation, health regime, and health-promoting enterprises. Also, with loss of family income while seeking health care, cost of food, and living expenses for the CLP companion when traveling to seek health care. Considering treatment quality poor, and feeling afraid of surgery or its complications, too. Psychological and nutritional treatment, lack of health professionals and equipment, medicines, and administrative procedures to access a consultation were associated with accessing CLP interdisciplinary treatment as well. **Conclusions:** Individuals with CL/P reported difficulties accessing interdisciplinary treatment, Medellín, 2021.

Keywords: Access to health care; Cleft palate; Health care quality; Health services accessibility

Introduction

Cleft Lip and/or Palate (CLP) are among the most frequent congenital craniofacial differences in the world population, caused by embryological defects in face formation. It affects the upper

lip, premaxilla, hard palate and/or the nostril floor [1]. Health care for patients with CL/P has high psychosocial and economic costs, affecting their well-being and quality of life [2-4]. The person with CLP requires access to treatment through comprehensive care, which must be carried out by a group of experts from different disciplines and for approximately 21 years, where the opportunity and synchrony in each stage of care determine the treatment results [5].

In Colombia, a prevalence of 2.78 per 10,000 inhabitants has recently been reported, and an incidence of 6.11 per 10,000 births [6]. Several studies in different countries have reported barriers to access to interdisciplinary CLP treatment [7-18].

Colombia has a public-private health system, depending on if the insurance company is private or public. Public or private, the insurance health carriers are called Health Promoting Enterprises (EPS acronym in Spanish). The system enrolls the population to either the contributory regime or the subsidized regime, according to their payment capacity. However, although official data indicates a universal health coverage rate of more than 96%, research has shown the persistence of barriers to access to health services [19].

Arrivillaga reported in Colombia, when individuals enter health services, they face complex and excessive administrative procedures, difficulties in accessing care, delays in assigning medical appointments, the delivery of diagnoses and treatments. Thus, the legal procedures to assert patients' rights concerning access to the health system have increased [19].

Ensuring access to primary health care is widely accepted as key to improving health outcomes [20]. In Colombia, Arrivillaga and Borrero propose a multidimensional theoretical-conceptual model of effective access to health services in the logic of the right to health. They refer to four basic interrelated elements: acceptability, availability, accessibility and quality, framed in universal and equitable health policies and in the universal health system [21].

Colombia's government does not regulate CLP care. Every CLP team can work with its own protocol. Additionally, each EPS decides where the patient is treated according to their network of providers. The purpose of this study was to determine the relation between socio-demographic, socio-economic conditions, cleft diagnoses, legal and administrative procedures, Covid-19 accessibility barriers, the opportunity of health care, physical,

economic and information accessibility with interdisciplinary treatment in cleft lip and/or palate population in Medellín in 2021.

Materials and Methods

This investigation was approved by the Universidad CES Institutional Review Board and Ethics Committee. In these research, the researchers use Arrivillaga and Borrero Multidimensional theoretical-conceptual model of effective access to health services in the logic of the right to health [21]. The reference population comprised 0-21-year old patients with CLP affiliated to a health carrier that was working in Medellín during 2021. There were eight insurance health carriers working in the city that year. The researchers invited all the insurance health carriers to participate in the study and two agreed. They were the main insurance health carriers in the city.

Patients with CLP diagnosis associated with other syndromes or cognitive impairment were excluded. The calculation of the probabilistic sample stratified by age was performed for a descriptive study based on the formula for finite populations [22], where the proportion of accessibility to interdisciplinary treatment was 80%, the confidence was 95% and the population was 166. Information from individual records of the provision of health services in Medellín, 2021 was used to obtain CLP diagnostic prevalence data in Medellín, Colombia. The selection was made through simple random sampling for each age group. According to the database provided by the two insurance health carriers, it was possible to obtain a final sample of 138 individuals.

A structured survey with 54 closed questions was used to collect the information. It was considered to independent variables socio-demographic conditions, socio-economic conditions, cleft diagnoses, legal and administrative procedures, Covid-19 accessibility barriers, opportunity to health care, physical, economic and information accessibility (Table 1). The dependent variable was interdisciplinary CLP treatment. An adult always answered the survey. If the patient with CLP was a child, the survey was answered by his/her guardian.

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Independent Variable	Sub-variables
Socio-demographic conditions	1.Sex 2.Age group 3.Origin
Socio-economic conditions	1.Mother's education 2.Father's education 3.Health regimen 4.Health Promoting Enterprises (EPS) 5.Mother's occupation 6.Father's occupation 7.Socio-economic stratification 8.Family income 9.A most important source of family income 10.Number of sites where interdisciplinary treatment is provided
CLP Diagnosis	1.Lip palate 2.Unilateral cleft lip and palate 3.Bilateral cleft lip and palate 4.Cleft palate
Physical accessibility	1.Travel time 2.Affectation of the search for interdisciplinary treatment due to the distance to the health care center 3.Affectation of the search for interdisciplinary treatment due to the time travel to the health care center 4.Affectation of the search for interdisciplinary treatment due to the lack of transportation to the health care center 5.Affectation of the search for interdisciplinary treatment due to the absence or damage to the roads
Economic accessibility	1.Transport value 2.Responsible for the payment of the first lip surgery 3. Affectation of the search for interdisciplinary treatment concerning transportation costs to the health care center 4. Affectation of the search for interdisciplinary treatment regarding the loss of family income while seeking health care 5. Affectation of the search for interdisciplinary treatment concerning living expenses for the companion when moving to seek health care 6. Affectation of the search for interdisciplinary treatment concerning the costs of food for the companion when traveling to seek health care 7. Affectation of the search for interdisciplinary treatment concerning treatment costs 8. Affectation of the search for interdisciplinary treatment regarding the lack of money saved to cover the expenses that are not covered by their social security Another payer of any stage of interdisciplinary treatment other than your social security

Information accessibility	<div>1. Affectation of the search for interdisciplinary treatment concerning the opinion of a family member about the treatment</div> <div>2. Affectation of the search for interdisciplinary treatment concerning the permission of a family member to perform the first two surgeries</div> <div>3. Affectation of the search for interdisciplinary treatment concerning the lack of time to seek it</div> <div>4. Affectation of the search for interdisciplinary treatment concerning their religious beliefs</div> <div>5. Affectation of the search for interdisciplinary treatment concerning the opinion of the community</div> <div>6. Affectation of the search for interdisciplinary treatment concerning the search for non-traditional medical treatments</div> <div>7. Affectation of the search for interdisciplinary treatment concerning the lack of knowledge of the treatment that the patient needs</div> <div>8. Affectation of the search for interdisciplinary treatment to considering the treatment quality poor</div> <div>9. Affectation of the search for interdisciplinary treatment concerning feeling fear of surgery or its complications</div> <div>10. Affectation of the search for interdisciplinary treatment concerning the lack of trust in the health system or in the professionals who provide care</div>
Opportunity to health care	<div>1. Obtaining MNA treatment</div> <div>2. Obtaining first lip and nose surgery</div> <div>3. Obtaining first palatal surgery</div> <div>4. Obtaining ear ventilation tubes surgery</div> <div>5. Obtaining pharyngoplasty surgery</div> <div>6. Obtaining orthodontic treatment</div> <div>7. Obtaining bone graft surgery</div> <div>8. Family medicine care</div> <div>9. Pediatric care</div> <div>10. Pediatric Dentist care</div> <div>11. Psychology care</div> <div>12. Speech Therapy care</div> <div>13. Nutrition care</div> <div>14. Plastic Surgery care</div> <div>15. Laboratory test care</div> <div>16. Imaging technologies care</div> <div>17. Affectation of the search for interdisciplinary treatment concerning the lack of knowledge of who can perform the treatment</div> <div>18. Affectation of the search for interdisciplinary treatment concerning the lack of health professionals who take charge of the treatment</div> <div>19. Affectation of the search for interdisciplinary treatment concerning the lack of information on the part of the health professionals in charge of the treatment</div> <div>20. Affectation of the search for interdisciplinary treatment concerning the lack of equipment and medicines to provide the treatment</div> <div>21. Affectation of the search for interdisciplinary treatment concerning the lack of friendliness of the health professionals in charge of the treatment</div> <div>22. Affectation of the search for interdisciplinary treatment concerning the waiting time to achieve said treatment</div> <div>23. Affectation of the search for interdisciplinary treatment concerning the hours of the medical center, clinic or hospital</div> <div>24. Affectation of the search for interdisciplinary treatment concerning the lack of follow-up of the long-term treatment</div> <div>25. Ease of communication with the health care center or centers to request appointments with the professionals who care for the patient with CL/P</div>
Legal procedures	<div>1. Legal actions to obtain treatment</div>
Administrative procedures accessibility	<div>1. Ease of carrying out administrative procedures to access consultation with general medicine</div> <div>2. Ease of carrying out administrative procedures to access a pediatric consultation</div> <div>3. Ease of carrying out administrative procedures to access a pediatric dentist consultation</div> <div>4. Ease of carrying out administrative procedures to access a consultation with psychology</div> <div>5. Ease of carrying out administrative procedures to access a consultation with speech therapy</div> <div>6. Ease of carrying out administrative procedures to access nutrition consultation</div> <div>7. Ease of carrying out administrative procedures to access plastic surgery consultation</div> <div>8. Ease of carrying out administrative procedures to access consultation for laboratory tests</div> <div>9. Ease of carrying out administrative procedures to access consultation for imaging technologies</div> <div>10. Ease of carrying out administrative procedures to access an orthodontic consultation</div> <div>11. Affectation of the search for interdisciplinary treatment for the CL/P patient due to paperwork or administrative delay in receiving care</div>

Covid 19 accessibility barriers	<ol style="list-style-type: none">1. Affectation of accessibility to interdisciplinary treatment for the CL/P patient due to transportation to travel to the care site regarding the Covid-19 pandemic2. Affectation of accessibility to interdisciplinary treatment due to the closure of roads or borders between municipalities to the care site regarding the Covid-19 pandemic3. Affectation of accessibility to interdisciplinary treatment due to the time of voluntary or mandatory preventive quarantine with respect to the Covid-19 pandemic4. Affectation of accessibility to interdisciplinary treatment due to the search for treatment regarding the Covid-19 pandemic5. Affectation of accessibility to interdisciplinary treatment due to administrative procedures to obtain care from health professionals regarding the Covid-19 pandemic6. Affectation of accessibility to interdisciplinary treatment due to out-of-pocket expenses in payments outside of social security coverage with respect to the Covid-19 pandemic7. Affectation of accessibility to interdisciplinary treatment due to the assignment of appointments with health professionals regarding the Covid-19 pandemic8. Affectation of accessibility to interdisciplinary treatment with respect to the information available about treatment regarding the Covid-19 pandemic9. Affectation of accessibility to interdisciplinary treatment with respect to legal procedures regarding the Covid-19 pandemic
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Table 1: Independent variables.

For the instrument’s design, the survey conducted by Swanson [17] to assess barriers to access to surgical treatment in Vietnam was used as a reference, with the author’s authorization. Additions were made to adapt the survey to the situation of Colombian CLP patients and their environment.

To control biases and increase the quality of data, training of the interviewer who carried out the data collection for the investigation was performed. A pilot test was carried out in ten surveys and a reviewer controlled the bias of typing errors.

The statistical program SPSS version 21, licensed by Universidad CES was used for data analysis. Descriptive statistics were calculated for the categorical variables and measures of central tendency and dispersion for the quantitative variable. Chi-squared tests and Fisher’s exact tests were used to determine differences in prevalence of factors of interest among the groups. The cross-sectional data were analyzed through the comparison of

prevalence ratios (PRs) in both unadjusted and adjusted models. Some dependent variables were recategorized based on the obtained frequencies. Analyses used a two-sided a level of 0.05 (all CIs reported at 95%).

Results

There was no missing data. 43% of the participants were 0 to 6 years old, 37% 7 to 14 years old and 20.3% 15 to 21 years old. Subjects were 55.1% men. Subjects living in urban areas predominated. The predominant academic level of parents was complete high school. Regarding affiliation to the social security system, 65.9% belong to the contributory regime. Housewives was the occupation of 36.2% of mothers and fathers were employees in 42.8% of cases. The socioeconomic level was low in 41.3% and low-low at 24.6%. The family income was 0.5-1 Current Legal Minimum Wage (CLMW) in 53.6% and the primary family income source was from the private sector (Table 2).

Socio-demographic condition	No.	%
Sex		
Men	76	55.1
Women	62	44.9
Age group		
0-6	59	42.8
7-14	51	37.0
15-21	28	20.3
Origin		
Rural	19	13.8
Urban	119	86.2
Socio-economic condition	No.	%
Mother’s education		
None	3	2.2
Elementary	14	10.1
High school	60	43.5
Technical	40	29.0
University	15	10.9
Postgraduate	5	3.6
Missing	1	0.7
Father’s education		
None	2	1.4
Elementary	18	13.0
High school	57	41.3
Technical	17	12.3
University	12	8.7
Postgraduate	5	3.6
Missing	27	19.6
Health regimen		
Contributory	91	65.9
Subsidized	47	34.1
Health Promoting Enterprises (EPS)		
Nueva EPS	1	0.7
Salud Total	2	1.4
Savia Salud	44	31.9
Sura	91	65.9
Mother’s occupation		
Housewife	50	36.2
Unemployed	53	38.4
Independent worker	3	2.2
Employee	24	17.4
Other	8	5.8
Father’s occupation		
Unemployed	59	42.8
Independent worker	7	5.1
Employee	39	28.3
Other	33	23.9
Socio-economic stratification		
Missing	4	2.9
1 low-low	34	24.6
2 low	57	41.3
3 middle-low	26	18.8
4 middle	12	8.7
5 middle high	3	2.2
6 high	2	1.4
Family income		
< 0,5 CLMW	16	11.6
0,5-1 CLMW	74	53.6
Entre 1 y 2 CLMW	16	11.6
2 a 3 CLMW	12	8.7
3 a 4 CLMW	2	1.4
> 4 CLMW	11	8.0
None	4	2.9
Missing	3	2.2
A most important source of family income		
Private sector employee salary	47	34.1
Private business	25	18.1
Public sector employee salary	20	14.5
Daily wage	9	6.5
Factory worker salary	8	5.8
Housekeeping employee salary	6	4.3
Service fee	5	3.6
Missing	5	3.6
Retirement	3	2.2
Real estate rent	3	2.2
Street sales	3	2.2
Charity	2	1.4
Government subsidy	1	0.7
Other	1	0.7

Table 2: Distribution of the study population according to socio-demographic and socio-economic conditions. Medellín, 2021.

The principal diagnosis of CLP was left unilateral cleft lip and palate, followed by bilateral lip and palate. Of those, 82.6% were receiving interdisciplinary treatment and 75% attended a single institution. Of this 75%, 96.4% were attended in one city’s health care center.

For most, they spent 31 to 60 minutes traveling from home to the healthcare center. The average cost of transportation from home to the health care center was \$US 5.10, which was paid by 50% of the subjects. Thus, the search for interdisciplinary treatment was affected by cost (60.4%), the distance (50.4%) and time of transportation (48.2%) to the care center, by lack (33.1%) and/or by the state of roads (11.5%). Other reasons were loss of family income while seeking for health care (60.4%), living expenses for the companion when traveling to seek health care (59%), the cost of the meal for both the patient and the companion during the day of the attention (54%), treatment costs (62%) and lack of savings to cover expenses not covered by their social security 65.5%. The insurance health carriers paid for the first lip surgery. However, patients reported other payers for interdisciplinary treatment different to the social security system in 40.3% of cases.

The search for interdisciplinary treatment was also hampered by lack of time and knowledge about the patient treatment (44.6%), considering the quality of treatment poor (30.9%), fear of surgery or its complications (28.8%), opinion of a family member about the treatment (22.3%), permission required from a family member to perform the surgery on the CLP patient (16.5%), opinion of their community (5%), religious believes (4.3%) and lack of confidence in the Colombian health system or in the professionals who provide care (26.6%). Of the participants, 9.4% searched for non-traditional treatments.

As for the treatments, 54% received Nasoalveolar Molding (NAM) during the first three months of life treated by a paediatric dentist, 58.3% had their first nose and lip surgery in the first six months of life and 48.9% underwent surgery for primary palatoplasty between 12 and 18 months. Additionally, 59% had ear ventilation tube surgery, most of them at one year of age, but 84.9% did not require pharyngoplasty surgery. Only 28.9% of subjects applied to the answer about the first orthodontic treatment. Of these, the treatment was received between the ages of eight and seventeen, the majority at twelve. It was impossible to obtain the age of the maxillofacial surgery because this treatment was not applied to the majority.

From the participants, 97.8% obtained an appointment with family medicine, 89.9% with paediatrics, 96.4% with paediatric dentistry, 73.9% with psychology, 87% with speech therapy, 64.5% with nutrition, 96.4%, with plastic surgery, 94.9% with laboratory tests and 88.5% for radiographic imaging.

Other limitations to accessing interdisciplinary treatment were difficulties communicating with the health care center to request appointments (66.9%) and waiting time for appointments (69.1%). The access to appointments was difficult in 24.5% with family medicine, 23.2% with paediatrics, 19.6% with paediatric dentistry, 12.3% with psychology, 18.8% with speech therapy, 12.3% with nutrition, 32.6% plastic with surgery, 13% with orthodontics, 13.8% with clinical laboratory and 3.2% with dental imaging.

They were limitations to accessing interdisciplinary treatment like lack of long-term treatment follow-up (52.5%) and information from the health professionals in charge of the treatment (48.2%), the schedule of the medical center that cares for the patient with CL/P (40.3%), lack of health professionals to take charge of the treatment (36%) and lack of equipment and medicines (24.5%).

Paperwork and administrative delays in authorizing healthcare treatment were considered limitations to access for 73.2% of the participants. Thus, legal actions to access the interdisciplinary treatment were required by 27.5% of respondents. From those, “Tutela” as denominated in Spanish, was the main legal tool (89.4%).

The accessibility to the interdisciplinary treatment of CLP concerning the Covid-19 pandemic was affected by 66.2% due to transportation to travel to the health care center, 70.5% due to voluntary or mandatory preventive quarantine time, 71.2% regarding the search for treatment, 70.5% to administrative procedures to obtain attention from health professionals, 73.4% regarding the information available about the treatment, 71.1% for the opportunity in the attention schedule medical appointments with health professionals and 14.4% concerning legal actions.

Regarding the relationship between socio-demographic conditions and accessibility to interdisciplinary treatment, it is concluded that neither sex, age and place of origin are statistically related to the interdisciplinary treatment of CLP. (Table 3).

Regarding the relationship between socio-economic conditions and accessibility to interdisciplinary treatment, it was found that the mother’s education, the health system affiliation regime, the insurance health carriers to which the patient belongs, and the occupation of the mother and father are statistically related to the interdisciplinary treatment of CLP (Table 3).

CLP patients diagnosed with greater anatomical involvement had less chance of obtaining interdisciplinary treatment. 48% less chance if it was unilateral cleft lip and palate and 49% less if the diagnosis was bilateral cleft lip and palate. On the contrary, having only a diagnosis of cleft palate makes them 11% easier to obtain interdisciplinary treatment (Table 3).

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Conditions	CL/P Interdisciplinary treatment				PR	PR CI	Chi- squared (p value)
	With treatment (n=114)		Without treatment (n=24)				
	No.	%	No.	%			
SOCIO-DEMOGRAPHIC CONDITIONS							
Sex							
Men	61	53.5	15	62.5	0.691	0.279-1.706	0.648 (0.421)
Women	53	46.5	9	37.5	1.00	-	
Age group							
15-21	20	17.5	8	33.3	0.392	0.129-1.188	3.142 (0.208)
7-14	43	37.7	8	33.3	0.843	0.292-2.435	
0-6	51	44.7	8	33.3	1.00	-	
Origin							
Rural	14	12.3	5	20.8	0.532	0.171-1.652	* (0.326)
Urban	100	87.7	19	79.2	1.00	-	
SOCIO-ECONOMIC CONDITIONS							
Mother's education							
Elementary and High School	9	8.0	8	33.3	0.059	0.006-0.548	12.875 (0.002)
Technical	85	75.2	15	62.5	0.298	0.037-2.398	
University	19	16.8	1	4.2	1.00		
Father's education							
Elementary and High School	16	16.2	4	33.3	0.250	0.025-2.489	2.320 (0.313)
Technical	67	67.7	7	58.3	0.598	0.069-5.214	
University	16	16.2	1	8.3	1.00	-	
Health regimen							
Subsidized	34	29.8	13	54.2	0.360	0.147-0.882	5.231 (0.022)
Contributory	80	70.2	11	45.8	1.00	-	
Health Promoting Enterprises (EPS)							
Other	2	1.8	1	4.2	0.220	0.018-2.667	10.469 (0.005)
Savia Salud (Public)	30	26.3	14	58.3	0.235	0.092-0.600	
Sura (Private)	82	71.9	9	37.5	1.00	-	
Mother's occupation							

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Conditions	CL/P Interdisciplinary treatment				PR	PR CI	Chi- squared (p value)
	With treatment (n=114)		Without treatment (n=24)				
	No.	%	No.	%			
Housewife	48	42.1	5	20.8	2.708	0.867-8.453	9.505 <i>(0.023)</i>
Independent worker	21	18.4	3	12.5	1.974	0.495-7.867	
Other	6	5.3	5	20.8	0.338	0.087-1.322	
Employee	39	34.2	11	45.8	1.00	-	
Father's occupation							
Independent worker	35	30.7	4	16.7	0.636	0.149-2.711	20.238 <i>(0.00)</i>
Other	24	21.1	17	66.7	0.109	0.033-0.361	
Employee	55	48.2	4	16.7	1.00	-	
Socio-economic stratification							
Low	71	64.5	21	84.0	0.888	0.094-8.393	3.981 (0.137)
Middle	35	31.8	3	12.0	2.917	0.242-35.122	
High	4	3.6	1	4.0	1.00	-	
Family income							
One CLMW or less	72	66.1	18	81.8	0.432	0.136-1.371	2.115 (0.146)
More than one CLMW	37	33.9	4	18.2	1.00	-	
A most important source of family income							
Other	42	37.8	7	31.8	1.304	0.492-3.461	0.286 (0.593)
Salary or retirement	69	62.2	15	68.2	1.00	-	
Number of sites where interdisciplinary treatment is provided							
More than one site	28	24.6	5	20.8	1.237	0.423-3.619	0.151 (0.697)
One place	86	75.4	19	79.2	1.00	-	
CLEFT DIAGNOSIS							
Diagnosis							
CP	25	21.9	3	12.5	1.111	0.166-7.431	1.843 (0.606)
UCL/P	51	44.7	13	54.2	0.523	0.106-2.581	
BCL/P	23	20.2	6	25.0	0.511	0.091-2.876	
CL	15	13.2	2	8.3	1.00	-	
*Fisher's exact statistic; nc: not calculated; bold and italic numbers are p≤0.05							

Table 3: Socio-demographic conditions, socio-economic and diagnoses of the study population according to CL/P interdisciplinary treatment. Medellín, 2021.

According to the relationship between physical accessibility and accessibility to interdisciplinary treatment, it was found that the travel time of less than one hour, the distance from the house to the care center, the total travel time, the lack of transportation and the lack of roads or damage to them, are not statistically related to the interdisciplinary treatment of CL/P (Table 4).

Regarding the relationship between economic accessibility and accessibility to interdisciplinary treatment, it was found that the loss of income while requesting health care, living expenses for the patient and the person who went with the patient, and food costs for the companion when traveling to seek care in health are statistically related to obtaining the interdisciplinary treatment of CLP (Table 4).

The relationship between the accessibility of information and the accessibility to interdisciplinary treatment shows that considering the quality of therapy poor and feeling afraid of surgery or its complications were statistically related to having interdisciplinary treatment of CLP (Table 4).

Conditions	CL/P Interdisciplinary treatment				PR	PR CI	Chi-squared (p value)
	With treatment (n=114)		Without treatment (n=24)				
	No.	%	No.	%			
PHYSICAL ACCESSIBILITY							
Travel time							
More than one hour	36	31.9	7	29.2	1.135	0.433-2.980	0.067 (0.796)
One hour or less	77	68.1	17	70.8	1.00	-	
Affectation of the search for interdisciplinary treatment due to the distance to the health care center							
Something	57	50.0	12	50.0	1.00	0.415-2.412	0.000 (1.000)
Nothing	57	50.0	12	50.0	1.00	-	
Affectation of the search for interdisciplinary treatment due to the time travel to the health care center							
Something	54	47.4	13	54.2	0.762	0.315-1.842	0.367 (0.545)
Nothing	60	52.6	11	45.8	1.00	-	
Affectation of the search for interdisciplinary treatment due to the lack of transportation to the health care center							
Something	34	30.1	11	45.8	0.509	0.207-1.248	2.225 (0.136)
Nothing	79	69.9	13	54.2	1.00	-	
Affectation of the search for interdisciplinary treatment due to the absence or damage to the roads							
Something	12	10.5	4	16.7	0.588	0.172-2.010	* (0.480)
Nothing	102	89.5	20	83.3	1.00	-	
ECONOMIC ACCESSIBILITY							

Citation: Cerón-Zapata AM, Segura-Cardona AM, Mejía-Ortega LM (2023) Accessibility to Interdisciplinary Treatment in Individuals with Cleft Lip and/or Palate in Medellín, Colombia, 2021. J Community Med Public Health 7: 319. DOI: <https://doi.org/10.29011/2577-2228.100319>

Conditions	CL/P Interdisciplinary treatment				PR	PR CI	Chi-squared (p value)
	With treatment (n=114)		Without treatment (n=24)				
	No.	%	No.	%			
Transport value							
More than \$20.000 Colombian pesos (US\$5)	47	41.2	7	29.2	1.704	0.655-4.431	1.211 (0.271)
\$20.000 Colombian pesos (\$US 5) or less	67	58.8	17	70.8	1.00	-	
Responsible for the payment of the first lip surgery							
Other	11	9.8	2	9.5	1.035	0.212-5.045	* (1.000)
Colombian Health System	101	90.2	19	90.5	1.00	-	
Affectation of the search for interdisciplinary treatment concerning transportation costs to the health care center							
Something	73	64.0	19	79.2	0.469	0.163-1.348	2.043 (0.153)
Nothing	41	36.0	5	20.8	1.00	-	
Affectation of the search for interdisciplinary treatment regarding the loss of family income while seeking health care							
Something	65	57.0	19	79.2	0.349	0.122-1.00	4.084 (0.043)
Nothing	49	43.0	5	20.8	1.00	-	
Affectation of the search for interdisciplinary treatment concerning living expenses for the companion when moving to seek health care							
Something	62	54.4	20	83.3	0.238	0.077-0.742	6.890 (0.009)
Nothing	52	45.6	4	16.7	1.00	-	
Affectation of the search for interdisciplinary treatment concerning the costs of food for the companion when traveling to seek health care							
Something	56	49.1	19	79.2	0.254	0.089-0.727	7.213 (0.007)
Nothing	58	50.9	5	20.8	1.00	-	
Affectation of the search for interdisciplinary treatment concerning treatment costs							
Something	67	58.8	18	75.0	0.475	0.175-1.287	2.207 (0.137)
Nothing	47	41.2	6	25.0	1.00	-	

Citation: Cerón-Zapata AM, Segura-Cardona AM, Mejía-Ortega LM (2023) Accessibility to Interdisciplinary Treatment in Individuals with Cleft Lip and/or Palate in Medellín, Colombia, 2021. J Community Med Public Health 7: 319. DOI: <https://doi.org/10.29011/2577-2228.100319>

Conditions	CL/P Interdisciplinary treatment				PR	PR CI	Chi-squared (p value)
	With treatment (n=114)		Without treatment (n=24)				
	No.	%	No.	%			
Affectation of the search for interdisciplinary treatment regarding the lack of money saved to cover the expenses that are not covered by their social security							
Something	75	65.8	16	66.7	0.962	0.378-2.444	0.007 (0.934)
Nothing	39	34.2	8	33.3	1.00	-	
Another payer of any stage of interdisciplinary treatment other than your social security							
Donations	26	22.8	3	12.5	2.101	0.565-7.818	1.283 (0.527)
Out of pocket expense	22	19.3	5	20.8	1.067	0.350-3.250	
Health Promoting Enterprises (EPS)	66	57.9	16	66.7	1.00	-	
INFORMATION ACCESSIBILITY							
Affectation of the search for interdisciplinary treatment concerning the opinion of a family member about the treatment							
Something	27	23.7	9	37.5	0.517	0.204-1.314	1.963 (0.161)
Nothing	87	76.3	15	62.5	1.00	-	
Affectation of the search for interdisciplinary treatment concerning the permission of a family member to perform the first two surgeries							
Something	17	14.9	6	25.0	0.526	0.183-1.514	* (0.236)
Nothing	97	85.1	18	75.0	1.00	-	
Affectation of the search for interdisciplinary treatment concerning the lack of time to seek it							
Something	47	41.2	15	62.5	0.421	0.170-1.042	3.626 (0.057)
Nothing	67	58.8	9	37.5	1.00	-	
Affectation of the search for interdisciplinary treatment concerning their religious beliefs							
Something	4	3.5	2	8.3	0.400	0.069-2.320	* (0.280)
Nothing	110	96.5	22	91.7	1.00	-	
Affectation of the search for interdisciplinary treatment concerning the opinion of the community							

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Conditions	CL/P Interdisciplinary treatment				PR	PR CI	Chi-squared (p value)
	With treatment (n=114)		Without treatment (n=24)				
	No.	%	No.	%			
Something	5	4.4	2	8.3	0.431	0.092-2.769	* (0.351)
Nothing	109	95.6	22	91.7	1.00	-	
Affectation of the search for interdisciplinary treatment concerning the search for non-traditional medical treatments							
Something	8	7.0	5	20.8	0.287	0.085-0.971	* (0.051)
Nothing	106	93.0	19	79.2	1.00	-	
Affectation of the search for interdisciplinary treatment concerning the lack of knowledge of the treatment that the patient needs							
Someting	48	42.1	15	62.5	0.436	0.176-1.080	3.324 (0.068)
Nothing	66	57.9	19	37.5	1.00	-	
Affectation of the search for interdisciplinary treatment to considering the treatment quality poor							
Something	29	25.4	15	62.5	0.205	0.081-0.518	12.539 (0.000)
Nothing	85	74.6	9	37.5	1.00	-	
Affectation of the search for interdisciplinary treatment concerning feeling fear of surgery or its complications							
Something	29	25.4	11	45.8	0.403	0.163-0.999	4.006 (0.045)
Nothing	85	74.6	13	54.2	1.00	-	
Affectation of the search for interdisciplinary treatment concerning the lack of trust in the health system or in the professionals who provide care							
Something	25	21.9	7	29.2	0.682	0.255-1.828	0.583 (0.445)
Nothing	89	78.1	17	70.8	1.00	-	
*Fisher’s exact statistic; nc: not calculated; bold and italic numbers are p≤0.05							

Table 4: Physical, economic, and information accessibility of the study population according to CL/P interdisciplinary treatment. Medellín, 2021.

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The relationship between the opportunity of care and the accessibility to interdisciplinary treatment indicates that obtaining psychological and nutritional therapy, the lack of health professionals to take charge of interdisciplinary treatment, and the lack of equipment and medicines to provide treatment were statistically related to having interdisciplinary treatment of CLP (Table 5).

The relationship between legal aspects and accessibility to interdisciplinary treatment indicates that taking legal action to obtain treatment was not statistically related to having interdisciplinary treatment for CLP. The relationship between accessibility to administrative procedures and obtaining interdisciplinary treatment showed that processes to access consultation with family medicine, paediatrics, paediatric dentistry, nutrition, plastic surgery, laboratory tests and imaging were statistically related to having interdisciplinary treatment of CLP (Table 5).

Conditions	CL/P Interdisciplinary treatment					PR	PR CI	Chi-squared (p value)
	With treatment (n=114)		Without treatment (n=24)					
	No.	%	No.	%				
OPPORTUNITY OF CARE								
Obtaining MNA treatment								
CL/P patient did not receive	39	37.5	10	52.6		0.540	0.202-1.445	1.535 (0.215)
CL/P patient received treatment	65	62.5	9	47.4		1.00	-	
Obtaining first lip and nose surgery								
CL/P patient did not receive	20	19.0	3	13.6		1.490	0.401-5.531	* (0.763)
CL/P patient received surgery	85	81.0	19	86.4		1.00	-	
Obtaining first palatal surgery								
CL/P patient did not receive	26	25.5	6	28.6		0.855	0.300-2.435	0.086 (0.769)
CL/P patient received surgery	76	74.5	15	71.4		1.00	-	
Obtaining ear ventilation tubes surgery								
CL/P did not know	4	3.5	1	4.2		0.803	0.323-1.994	0.248 (0.884)
CL/P patient did not receive surgery	42	36.8	10	41.7		0.765	0.079-7.403	
CL/P patient received surgery	68	59.6	13	54.2		1.00	-	
Obtaining pharyngoplasty surgery								
CL/P did not know	2	1.8	1	4.2		0.970	0.257-3.667	0.544 (0.762)
CL/P patient did not receive surgery	97	85.1	20	83.3		0.400	0.027-5.962	
CL/P patient received surgery	15	13.2	3	12.5		1.00	-	
Obtaining orthodontic treatment								
CL/P patient did not receive treatment	82	71.9	18	75.0		0.094	0.311-2.346	0.094 (0.760)
CL/P patient received treatmnet	32	28.1	6	25.0		1.00	-	
Obtaining bone graft surgery								

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Conditions	CL/P Interdisciplinary treatment					PR	PR CI	Chi-squared (p value)
	With treatment (n=114)		Without treatment (n=24)					
	No.	%	No.	%				
Does not apply	87	76.3	21	87.5		0.160	0.10-2.630	2.721 (0.257)
CL/P patient did not receive surgery	2	1.8	1	4.2		0.331	0.073-1.511	
CL/P patient received surgery	25	21.9	2	8.3		1.00	-	
Family medicine care								
CL/P patient did not receive	3	2.6	0	0		n.c	n.c	*
CL/P patient received	111	97.4	24	100.0		1.00	-	
Paediatric care								(1.000)
CL/P patient did not receive	11	9.6	3	12.5		0.748	0.192-2.913	
CL/P patient received	103	90.4	21	87.5		1.00	-	(0.711)
Paediatric Dentist care								
CL/P patient did not receive	4	3.5	1	4.2		0.836	0.089-7.832	*
CL/P patient received	110	96.5	23	95.8		1.00	-	
Psychology care								(1.000)
CL/P patient did not receive	24	21.1	12	50.0		0.267	0.106-0.668	
CL/P patient received	90	78.9	12	50.0		1.00	-	8.616 (0.003)
Speech Therapy care								
CL/P patient did not receive	12	10.5	6	25.0		0.353	0.117-1.061	*
CL/P patient received	102	89.5	18	75.0		1.00	-	
Nutrition care								(0.088)
CL/P patient did not receive	35	30.7	14	58.3		0.316	0.128-0.781	
CL/P patient received	79	69.3	10	41.7		1.00	-	6.610 (0.010)
Plastic Surgery care								
CL/P patient did not receive	4	3.5	1	4.2		0.836	0.089-7.832	*
CL/P patient received	110	96.5	23	95.8		1.00	-	
Laboratory test care								(1.000)
CL/P patient did not receive	7	6.1	0	0		n.c	n.c	
CL/P patient received	107	93.9	24	100.0		1.00	-	(0.605)
Imaging technologies care								

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Conditions	CL/P Interdisciplinary treatment					PR	PR CI	Chi-squared (p value)
	With treatment (n=114)		Without treatment (n=24)					
	No.	%	No.	%				
CL/P patient did not receive	15	13.2	1	4.2		3.485	0.438-27.740	* (0.305)
CL/P patient received	99	86.8	23	95.8		1.00	-	
Affectation of the search for interdisciplinary treatment concerning the lack of knowledge of who can perform the treatment								
Something	52	45.6	15	62.5		0.137	0.204-1.244	2.263 (0.132)
Nothing	62	54.4	9	37.5		1.00	-	
Affectation of the search for interdisciplinary treatment concerning the lack of health professionals who take charge of the treatment								
Something	35	30.7	15	62.5		0.266	0.106-0.665	8.677 (0.003)
Nothing	79	69.3	9	37.5		1.00	-	
Affectation of the search for interdisciplinary treatment concerning the lack of information on the part of the health professionals in charge of the treatment								
Something	51	44.7	15	62.5		0.486	0.196-1.201	2.507 (0.113)
Nothing	63	55.3	9	37.5		1.00	-	
Affectation of the search for interdisciplinary treatment concerning the lack of equipment and medicines to provide the treatment								
Something	22	19.3	12	50.0		0.239	0.095-0.603	10.065 (0.002)
Nothing	92	80.7	12	50.0		1.00	-	
Affectation of the search for interdisciplinary treatment concerning the lack of friendliness of the health professionals in charge of the treatment								
Something	43	37.7	13	54.2		0.512	0.211-1.245	2.224 (0.136)
Nothing	71	62.3	11	45.8		1.00	-	

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Conditions	CL/P Interdisciplinary treatment					PR	PR CI	Chi-squared (p value)
	With treatment (n=114)		Without treatment (n=24)					
	No.	%	No.	%				
Affectation of the search for interdisciplinary treatment concerning the waiting time to achieve said treatment								
Something	78	68.4	17	70.8		0.892	0.340-2.341	0.054 (0.817)
Nothing	36	31.6	7	29.2		1.00	-	
Affectation of the search for interdisciplinary treatment concerning the hours of the medical center, clinic or hospital								
Something	46	40.4	10	41.7		0.947	0.388-2.315	0.014 (0.905)
Nothing	68	59.6	14	58.3		1.00		
Affectation of the search for interdisciplinary treatment concerning the lack of follow-up of the long-term treatment								
Something	59	51.8	15	62.5		0.644	0.261-1.590	0.921 (0.337)
Nothing	55	48.2	9	37.5		1.00	-	
Ease of communication with the health care center or centers to request appointments with the professionals who care for the patient with CL/P								
Not easy	73	64.0	19	79.2		2.134	0.742-6.140	2.043 (0.153)
Some easy	41	36.0	5	20.8		1.00	-	
LEGAL PROCEDURES								
Legal actions to obtain treatment								
Yes	31	27.2	7	29.2		0.907	0.343-2.398	0.039 (0.844)
No	83	72.8	17	70.8		1.00	-	
ADMINISTRATIVE PROCEDURES ACCESSIBILITY								
Ease of carrying out administrative procedures to access consultation with general medicine								
Not easy	22	19.8	11	45.8		0.009	0.115-0.739	7.230 (0.007)
Some easy	89	80.2	13	54.2		1.00	-	
Ease of carrying out administrative procedures to access a pediatric consultation								

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Conditions	CL/P Interdisciplinary treatment					PR	PR CI	Chi-squared (p value)
	With treatment (n=114)		Without treatment (n=24)					
	No.	%	No.	%				
Not easy	20	19.4	12	57.1		0.181	0.067-0.488	12.966 (0.000)
Some easy	83	80.6	9	42.9		1.00	-	
Ease of carrying out administrative procedures to access a pediatric dentist consultation								
Not easy	16	14.5	11	47.8		0.186	0.070-0.492	* (0.001)
Some easy	94	85.5	12	52.2		1.00	-	
Ease of carrying out administrative procedures to access a consultation with psychology								
Not easy	15	16.7	2	16.7		1.00	0.199-5.034	* (1.000)
Some easy	75	83.3	10	83.3		1.00	-	
Ease of carrying out administrative procedures to access a consultation with speech therapy								
Not easy	19	18.6	7	38.9		0.360	0.123-1.050	* (0.067)
Some easy	83	81.4	11	61.1		1.00	-	
Ease of carrying out administrative procedures to access nutrition consultation								
Not easy	12	15.2	5	50.0		0.179	0.045-0.714	* (0.020)
Some easy	67	84.8	5	50.0		1.00	-	
Ease of carrying out administrative procedures to access plastic surgery consultation								
Not easy	32	29.1	13	56.5		0.316	0.126-0.793	6.394 (0.011)
Some easy	78	70.9	10	43.5		1.00	-	
Ease of carrying out administrative procedures to access consultation for laboratory tests								
Not easy	12	11.2	7	29.2		0.307	0.106-0.890	* (0.048)
Some easy	95	88.8	17	70.8		1.00	-	
Ease of carrying out administrative procedures to access consultation for imaging technologies								
Not easy	21	21.2	11	47.8		0.294	0.114-0.759	6.832 (0.009)
Some easy	78	78.8	12	52.2		1.00	-	

Conditions	CL/P Interdisciplinary treatment					PR	PR CI	Chi-squared (p value)
	With treatment (n=114)		Without treatment (n=24)					
	No.	%	No.	%				
Ease of carrying out administrative procedures to access an orthodontic consultation								
Not easy	14	43.8	4	66.7		0.389	0.062-2.438	*
Some easy	18	56.3	2	33.3		1.00	-	
Affection of the search for interdisciplinary treatment for the CL/P patient due to paperwork or administrative delay in receiving care								
Not easy	83	72.8	18	75.0		0.892	0.324-2.455	0.049 (0.826)
Some easy	31	27.2	6	25.0		1.00	-	
*Fisher’s exact statistic; nc: not calculated; bold and italic numbers are p≤0.05								

Table 5: Opportunity of care legal and administrative procedures of the study population according to CL/P interdisciplinary treatment. Medellin. 2021.

Discussion

The characterization of the population object of this study showed a distribution consistent with that of previous studies carried out in the country regarding individuals with CLP [6,16,23]. Socio-demographically, individuals residing in urban areas predominated, the same as that reported by the study by González in Bogotá and Cassell in the United States [13,16]. A low educational level of both parents was observed, similar to what was found by González in Bogotá and by Yao and Swanson in Vietnam [14,16,17]. This finding was contrary to the characterization reported by Cassell [13], in which nearly two-thirds of mothers living in North Carolina had attended or graduated from college. The scientific literature has said that a higher educational level of 12 years of primary and intermediate education is associated with increased family health care and decreased poor health [24].

Socio-economic conditions affected the accessibility to interdisciplinary treatment, especially for individuals in the subsidized health regime, the monthly family economic income of one or fewer current legal minimum wage and the occupation of the father and mother other than being employed. In the studies carried out in Colombia, Brazil, Sri Lanka, the United States, Africa, Australia and Nepal, there are coincidences in this regard [9,11-13,16,18,25]. Economic barriers are also reported in

studies where the sample included patients cared for by a Non-Governmental Organization (NGO) in various countries [15,26].

Concerning the relationship between economic accessibility and interdisciplinary treatment, it was found that the loss of family income while the patient requested health care, the maintenance expenses and food costs for the companion when moving to seek health care are statistically related to obtaining interdisciplinary treatment for CLP. Adetayo reported this same difficulty in Africa [11]. Massenburg stated that the lack of financial support was a barrier perceived by patients to obtain health care for surgical repair of the lip and palate, especially in Eastern Europe and Eastern Asia [26].

It is observed that individuals with CLP who have a more significant anatomical difference have less chance of obtaining interdisciplinary treatment. 48% less chance if it is unilateral cleft lip and palate and 49% less if the diagnosis is bilateral cleft lip and palate. On the contrary, having only a diagnosis of cleft palate makes it 11% easier to obtain interdisciplinary treatment. Contrary to this finding, Cassell reported no relationship between diagnosis and having barriers to treatment in North Carolina [13].

The physical accessibility conditions of Medellín did not affect accessibility to interdisciplinary treatment, contrary to what

was found by González in Bogotá, Colombia, where geographic barriers were one of the main barriers reported in her study [16]. This barrier could be related to the size of both cities and the public transport system. Nor does it coincide with Swanson and Yao, in Vietnam, where access to care for the first surgery played a role [14,17]. Becker, Al Algili and Cassell [8,10,13] in the United States and Linderborg in Nepal[9] report physical access difficulties to interdisciplinary CLP treatment. In the study from Africa, challenges with transportation were also reported [11].

The accessibility of information of those who were part of this study affected the interdisciplinary treatment, especially considering the quality of treatment poor and feeling fear of surgery or its complications. Ise et al. in Brazil showed that 10% of the patients' caregivers reported a lack of treatment information [18]. González et al. found in Bogotá that 28% of the participants reported being familiar with centers, institutions, or universities that offer interdisciplinary care [16]. Amaratunga, in 1984, wrote that the main reason for not receiving CLP treatment is ignorance of the optimum age for treatment [12]. Massenburg found that lack of patient knowledge was the second most perceived barrier by providers for surgical repair of CLP in low- and middle-income countries [26]. Yao, in Vietnam, showed that a lack of accurate information and education may have led to inflated perceptions of the costs and a diminished perception of the benefits of surgical intervention [14]. Linderborg reported that 23% of his study sample observed barriers in communication and care coordination [9].

73.2% of individuals in this study think that administrative procedures affected interdisciplinary treatment, particularly systems to access family medicine, paediatrics, paediatric dentistry, nutrition, plastic surgery, laboratory tests, and radiographic imaging. Contrary results to the study carried out in Bogotá, where 15 to 20% of respondents reported difficulties making an appointment on time [16].

The opportunity of health care affected the interdisciplinary treatment of CLP in Medellín. It was found that obtaining psychology and nutrition treatment, the lack of health professionals to take charge of interdisciplinary treatment, and the lack of equipment and medicines to provide treatment are statistically related to having interdisciplinary treatment of CLP. These results were contrary to those of González et al. in Bogotá, where 75% of the surveyed participants reported having received timely health care from different specialists [16]. In Sri Lanka, 66% of respondents reported unavailability of treatment [12]. In his multi-country study, Carlson found that low-income countries are significantly less likely to access timely surgery and bear the burden and complications of cleft palate surgery for more extended periods without surgical repair[15]. In his multi-country

study, Massenburg reported that he analyzed the barriers perceived by providers around the world to surgical repair of CLP in low- and middle-income countries. He found a lack of equipment, available and well-trained expert professionals [26]. These findings are consistent with Yao's findings in Vietnam, where the most commonly reported obstacles to obtaining surgical cleft care were a lack of trained medical personnel and a lack of equipment/medicine [14].

Regarding legal procedures, 27.5% of the patients surveyed reported using legal actions to access interdisciplinary treatment, while in the Bogotá study, 23.3% did so [16]. The research collects data from a specific moment because it is an observational, descriptive, and cross-sectional study without being able to infer a causal relationship. It is suggested to carry out a prospective cohort study in Medellín to know the health trajectory of individuals with CLP.

In conclusion, even though 82.6% reported having interdisciplinary treatment, there were conditions, which impact accessibility to the interdisciplinary treatment for the CLP Medellín population in 2021. The conditions were the mother's education, mother's and father's occupation, health regime, and health-promoting enterprises. Also, loss of family income while seeking health care, cost of food, and living expenses for the CLP companion when traveling to seek health care. Considering treatment quality poor, and feeling afraid of surgery or its complications, too. Psychological and nutritional treatment, lack of health professionals, equipment and medicines, and administrative procedures to access a consultation with family medicine, paediatric, paediatric dentistry, nutrition, plastic surgery, lab test and radiographic images were associated with accessing CLP interdisciplinary treatment as well.

The onset of the Covid-19 pandemic impacted the opportunity for healthcare and accessibility to the interdisciplinary treatment of CLP due to the restrictions placed upon transport, social distancing, and both the voluntary and mandatory quarantines. The more anatomic affection of CLP, the more difficult it is for the population to access the interdisciplinary treatment, which puts them at a higher social disadvantage. Lastly, a high percentage of interdisciplinary treatment is centralized in one of the city's health care centers.

Conflict of Interest Disclosure

The authors declare no conflict of interest.

Author Contributions

Dr. Cerón-Zapata and Dr. Mejía Ortega conceived the ideas. Dr. Cerón-Zapata collected the data. Dr. Cerón-Zapata and Dr. Segura-Cardona analysed the data. The three authors led the writing.

Statements Relating to Ethics and Integrity Policies

Data Availability Statement

The data analysed during the current study are available from the corresponding author on reasonable request

Funding Statement

The research did not receive specific funding but was performed as part of the employment of the authors. The employer is CES University. CES University did not have a role in the design, interpretations and/or views expressed in this publication.

Ethics Approval Statement

This investigation was approved by the Ethics Committee of CES University.

Patient Consent Statement

All persons gave their informed consent prior to their inclusion in the study.

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