THE EFFECT OF SOCIOECONOMIC FACTORS ON THE FIRST VISIT OF A CLUBFOOT TO A HEALTH FACILITY

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Abstract

Background: Clubfoot, also known as CTEV (Congenital Talipes Equinovarus), is a foot deformity characterized by varus of the hindfoot, adductus of the forefoot (metatarsus), arched middle leg (cavus), and equinus. Untreated CTEV causes physical, social, psychological, and financial burdens that worsen the patient's condition, family, and community around the patient.

Methods: This research is an observational analytic study in which data was collected in the city of Medan in December 2021 and the number of samples in this study was 38.

Results: Patients with low paternal education had a 3.5 times risk of having a first visit time of > 1 year compared to those with high paternal education. Patients with low maternal education had a risk of 3,212 times having a first visit time of > 1 year compared to those with high maternal education. Patients with low paternal income are 3,261 times more likely to have a first visit time of > 1 year than those with high paternal income.

Conclusion: Socioeconomic factors such as father's education, mother's education, and father's income were significantly related to the first visit of pediatric patients with clubfoot to health facilities.

Keywords: CTEV, socioeconomic, hospital visit, time of visit

Introduction

CTEV is also known as CTEV (Congenital Tapiles equnovarus), which is defined as deformity of the foot characterized by varus of the hindfoot, adductus of the forefoot (metatarsus), the curvature of the midfoot (cavus), and equinus.[1] CTEV is one of the leading causes of disability in the world. The prevalence and incidence of CTEV vary by country, but the global incidence of CTEV is in the range of 0.6 – 1.5 cases per 1000 live births per year, and the global burden of this disease reaches 150,000 infants per year.[2] CTEV is more common in boys than girls in a 2:1 ratio, and the incidence of bilateral CTEV is estimated to be around 50%.[3] This disorder mainly occurs in developing countries, where 80% of cases occur in low-middle-income countries (LMIC/Low Middle-Income Countries).[4]

CTEV is also a problem in Southeast Asia. The prevalence of CTEV reaches 1.21 per 1000 live births in Southeast Asia.[5] In Indonesia alone, the prevalence of CTEV ranges from 0.76 - 3.49 out of 1000 live births per year, with an estimated increase of 3,648 to 16,752 new cases of CTEV in Indonesia per year.[6] Until now, the etiology and pathogenesis of CTEV have not been fully elucidated.[4] There are many theories regarding the etiology of CTEV, including

the intrauterine mechanical factor that the infant's feet are held in the equinovarus position due to external uterine compression. In addition, CTEV is also thought to occur due to a neuromuscular defect, but many studies state that no histologic and electromyographic abnormalities were found.[6]

Untreated CTEV causes physical, social, psychological, and financial burdens that worsen the patient's condition, family, and community around the patient. These children must undergo extensive corrective surgery with the risk of failure and complications. Revision operations are also more common. CTEV that persists into adolescence also causes severe pain.[3] The golden period for clubfoot treatment is three weeks after the baby is born with the conservative Ponseti method of treatment. Conservative therapy with serial casting shows promising results in the majority of patients. When first presenting, the poor outcome was possible due to patient delay (>1 year of age).[7] Untreated or delayed CTEV is also a common problem in many low- or middle-income countries like Ethiopia. Its prevalence is estimated at 1:500 in some Sub-Saharan African countries.[8]

During the COVID-19 pandemic, there was also a decrease in the rate of patient visits to health care centers, especially for non-emergency cases. In Italy, the significant decline in access to pediatric care may reflect the scarcity of available resources due to pandemic-related redistribution or the aversion on the part of parents and caregivers to the risk of exposure to the SARS-CoV-2 virus. Reduced access to health services can be detrimental to pediatric patients and children with special needs.[9] Seeing these factors, the researcher was interested in researching CTEV and the socioeconomic factors that affect the arrival time of parents of children with CTEV to the doctor.

Methods

The study is an observational analytic study with a cross-sectional approach. The research and sample selection were conducted at H. Adam Malik Hospital Medan. The research data started in March 2020 until March 2021. The hospital is a type A hospital. The target population of this study is all pediatric patients with CTEV. The affordable population of this study was pediatric patients with CTEV whose diagnosis had been confirmed based on anamnesis and examination at the Dept. Orthopedic Hospital consulted at the Orthopedic polyclinic from March 2020 to March 2021.

The inclusion criteria for this study were parents with CTEV patients who came to the Orthopedic poly at H. Adam Malik Hospital Medan from March 2020 to March 2021 and parents of patients who agreed to be interviewed through direct interviews, telephone, or google form. . The exclusion criteria were parents of children diagnosed with CTEV with neuromuscular abnormalities.

This proposal will be submitted to the Ethics Committee of the Faculty of Medicine, University of North Sumatra for ethical approval before conducting the research. Data collection was carried out by total sampling, where all subjects who came sequentially and met the inclusion criteria were included in the study until the required number of subjects was met.

The steps taken in this study were data obtained from medical records, then identifying inclusion and exclusion criteria, contacting patients via telephone, or visiting patients' homes, asking for informed consent, direct interviews, telephone or google forms, data processing (tabulations), then analyze the data and get the research results.

The data in this study were collected, processed, and analyzed by a computerized system using the Statistical Package for Social Sciences (SPSS) software. Univariate analysis was carried

out by testing the frequency distribution on each variable. Bivariate analysis was carried out using the chi-square test if the variable had an ordinal - ordinal measuring scale. If the chi-square test conditions are not met, with expected count cells < 5, an alternative test will be carried out using Fisher's exact test. Furthermore, a logistic regression test was performed to determine the Odds Ratio (OR) with a Confidence Interval (CI) of 95%. A logistic regression test was performed on each question point as an independent variable and associated with the dependent variable. Data analysis will be interpreted meaningfully if found p-value < 0.05.

Result

This study is an observational analytic study to determine the effect of socioeconomic factors on the first visit of clubfoot patients to a health facility. The research data collection was carried out in the city of Medan in December 2021. The number of samples in this study was 38 samples. In the results of univariate analysis, it was found that the proportion of clubfoot patients who were male was greater than female, with the respective proportions being 58% and 42%. The father's age range is 24-36 years, while the mother is 19-33 years, and the proportion based on the highest age range is 26-30 years.

More samples live in urban areas than rural areas, with 52.6% and 47.4%, respectively. The proportion of fathers' employment status as employees or non-employees is balanced, while the proportion of mothers is more as non-employees with 65.8%. The proportion of fathers' high and low educational status was also balanced, while the proportion of mothers who had higher education status was 55.3%. A more significant proportion of low income than high income was found for both fathers and mothers, with the proportions of 60.5% vs. 39.5% and 68.4% vs. 31.6%, respectively. Based on the first visit, the proportion of patients who visited at < 1 year was more significant, namely 52.6%. More samples have faster travel times to health facilities based on the travel time, which is 57.9%. Almost all samples have insurance, but there are 7.9% who do not. All samples admitted that there were no difficulties in accessing health facilities. This is presented in Table 1 below.

Table 1. Demographic of the included patient

Variable	Frequency	Percentage
Gender		
Male	22	58%
Female	16	42%
Father's Age		
20-25 year	5	13.2%
26-30 year	25	65.8%
31-35 year	7	18.4%
36-40 year	1	2.6%
Mother's Age		
20-25 year	17	44.7%
26-30 year	17	44.7%
31-35 year	4	10.5%
Residency		
Rural	18	47.4%
City	20	52.6%
Father's Occupation		
Non-employee	19	50%

Employee	19	50%
Mother's Occupation		
Non-Employee	25	65.8%
Employee	13	34.2%
Father's Education		
Low	19	50%
High	19	50%
Mother's Education		
Low	17	44.7%
High	21	55.3%
Father's Income		
Low	23	60.5%
High	15	39.5%
Mother's Income		
Low	26	68.4%
High	12	31.6%
Visiting Time		
>1 year	18	47.4%
≤ 1 year	20	52.6%
Traveling Time		
Long	16	41.1%
Fast	22	57.9%
Insurance		
None	3	7.9%
Yes	35	92.1%
Difficulty		
Easy	38	100%
Total	**38**	**100%**

In analyzing the influence of each socioeconomic factor on the visit time of pediatric patients with clubfoot to a health facility, a logistic regression test was used to obtain the odds ratio (OR) and p-value. The results of the analysis are presented in Table 2 below.

Table 2. Analysis of the Influence of Socioeconomic Factors on Time of First Visit

Variable	Visiting Time				P value	OR	95% CI
	>1 year		≤1 year				
	n	%	n	%			
Gender							
Male	10	45.5	12	54.5	0.782	0.833	0.229-
Female	8	50.0	8	50.0			3.028
Residency							
Rural	11	61.1	7	38.9	0.107	2.918	0.780-
City	7	35.0	13	65.0			10.924
Father's Occupation							
Non-Employee	11	57.9	8	42.1	0.194	2.357	0.640-
Employee	7	36.8	12	63.2			8.677
Mother's Occupation							
Non-Employee	14	56.0	11	44.0	0.139	2.864	0.694-
Employee	4	30.8	9	69.2			11.824
Father's Education							

Low	14	73.7	5	26.3	0.001	3.500	1.407-
High	4	21.1	15	78.9			8.706
Mother's Education							
Low	13	76.5	4	23.5	0.001	3.212	1.430-
High	5	23.8	16	76.2			7.214
Father's Income							
Low	15	65.2	8	34.8	0.006	3.261	1.135-
High	3	20.0	12	80.0			9.367
Mother's Income							
Low	14	53.8	12	46.2	0.239	1.615	0.673-
High	4	33.3	8	66.7			3.878
Traveling Time							
Long	10	62.5	6	37.5	0.111	2.917	0.768-
Fast	8	36.4	14	63.6			11.070
Insurance							
None	1	33.3	2	66.7	0.541	0.529	0.044-
Yes	17	48.6	18	51.4			6.387

The statistical analysis results showed that the social factors that were statistically significant related to the time of the first visit were the education of the father and mother. Based on the analysis, it was found that patients with low paternal education had a 3.5 times risk of having a first visit time of > 1 year compared to those with high paternal education. It was also found that patients with low maternal education had a 3,212 risk of having a first visit > 1 year compared to those with high maternal education.

The economic factor based on the analysis found to have a significant relationship with the first visit is the father's income. It was found that patients with low paternal income were 3,261 times more likely to have a first visit time of > 1 year compared to those with high paternal income. Overall, it was found that the greatest OR value of the socioeconomic factor associated with the time of the first visit for patients with clubfoot was paternal education.

Discussion

Clubfoot, also known as CTEV (Congenital Talipes Equinovarus), is a foot deformity characterized by varus of the hindfoot, adductus of the forefoot (metatarsus), arched middle leg (cavus), and equinus. These pediatric malformations can be classified according to their clinical presentation as secondary or syndromic if they are associated with other congenital diseases (20% of cases) or congenital disabilities without other malformations (80% of cases), also known as idiopathic CTEV).[1]

Research on the relationship between socioeconomic factors of patients is still very rarely studied. From what we can see, most studies focus on the pathophysiology of this disease, even though one of the most important things that patients and their families always face is socioeconomic factors, especially in developing countries. In one study, it was said that patients with low socioeconomic conditions had poor health low life expectancy and were at risk of developing more chronic diseases when compared to those with high socioeconomic status.[10]

According to the demographic data in this study, most patients with clubfoot were male compared to females (58% and 42%). These results are in accordance with the research conducted by Gurnett et al.[11] where in the research conducted, the majority of the samples studied were male (65.5%). This is also in accordance with previous research which said that boys are more susceptible than girls.[12] For the age range of the father and mother, in this

study the age range of the father was between 24-36 years. Meanwhile, the mother's age ranged from 19-33 years. For the most age range is 26-30 years. For the domicile areas in the sample of this study, the majority live in urban areas compared to rural areas (52.6% and 47.4%).

Based on the work status of the father, who has a job as an employee has a visit time of >1 year by 36.8% compared to a visit time of <1 which is 63.2%. For visit times >1 fathers who work not as employees have a percentage of 57.9% compared to time of visit <1 year of 42.1%. Based on the results of the analysis, the father's occupation did not show a significant effect on the time of the first visit (p = 0.194). For mothers, who have a job as an employee have a visit time of >1 year by 30.8% compared to a visit time of <1 year by 69.2%. For mother visits >1 year, mothers who work not as employees are 56% compared to visits <1 year of 44%. Based on the results of the analysis, the mother's occupation also did not show a significant effect on the time of the first visit (p=0.139). However, there are reports in other studies that find that one of the factors related to awareness of seeking treatment or utilizing existing health services is the work status of the head of the household.[13]

Based on the educational status of the parents, the father's low education had a visit time of >1 year of 73.7% compared to a visit of <1 year of 26.3%. For the father's high educational status, having a visit of >1 year was 21.1% compared to a visit of <1 year of 78.9%. Based on the results of the analysis, the father's education level showed a significant relationship with the time of the first visit (p = 0.001). The results of the analysis in this study, it was also found that patients with low paternal education had a 3.5 times risk of having a first visit > 1 year compared to high paternal education. Meanwhile, mothers with low education had visits >1 year of 76.5% compared to visits <1 year of 23.5%. For mothers with high educational status, having a visit of >1 year was 23.8% compared to a visit of <1 year of 76.2%. Based on the results of the analysis, the mother's education level also had a significant relationship with the time of the first visit (p = 0.001). From the results of the analysis, it was also found that patients with low maternal education had a risk of 3,212 times having a first visit > 1 year compared to those with high maternal education. This is in line with research by Demakos et al. where in his research it was found that patients with low social status (in this case education) had a worse level of health. From these results we can see that a person's educational status can have an impact on that person's health as well (Demakos et al., 2008).

In terms of parental income, the father's low income has a visit time of >1 year by 65.2% compared to visits <1 year by 34.8%. For high income fathers, having a visit of >1 year is 20% compared to a visit of <1 year of 80%. Based on the results of the analysis, father's income has a significant relationship with the time of the first visit (p = 0.006). From the analysis, it can also be found that patients with low paternal income are 3,261 times at risk for having a first visit time of > 1 year compared to high paternal income. For low-income mothers have a visit time of >1 year by 53.8% compared to visits <1 year by 46.2%. For high maternal income, having a visit of >1 year was 33.3% compared to a visit of <1 year of 66.7%. Based on the results of the analysis, maternal income does not have a significant relationship with the time of the first visit (0.239). This is in accordance with previous studies where patients with low incomes are more likely not to visit health facilities.[14]

Based on travel time, patients with long travel times had visits >1 year of 62.5% compared to visits <1 year of 37.2%. Meanwhile, patients with fast travel time had a visit time of >1 year by 36.4% compared to a visit <1 of 63.6%. Based on the results of the analysis, travel time did not have a significant relationship with the time of the first visit (p = 0.111). This is clarified by the questions posed by the researchers in this study to the sample under study where of all the samples studied, all of them said that there were no difficulties in accessing health facilities. The results of this study are in line with research by Bellon et al. that residence and travel time

to health facilities are not factors that affect patient treatment. However, this result is different from the research conducted by Arpey et al.[10] where the research found the location or distance to health facilities is one of the inhibiting factors. The interview results obtained explained that low socioeconomic status complicates transportation to health facilities due to the remote location or high transportation costs.

Based on the presence or absence of insurance, patients who did not have insurance had a visit time of >1 year by 33.3% compared to visits <1 of 66.7%. Meanwhile, for patients who have insurance, having a visit time of >1 year is 48.6% compared to <1 year at 51.4%. Based on the results of the analysis, insurance ownership did not have a significant relationship with the time of the first visit (p=0.541). This is different from previous research, where previous studies explained that health care users will find it easier to seek treatment if there is a separate source for financial support.[15] This result also differs from the study conducted by Pan et al. which explains that insurance in developing countries can lighten the financial burden, so that it can improve health.[16]

In Indonesia itself, the insurance provided by the government is BPJS. The BPJS program includes life insurance, work accidents, old age insurance, pension funds and death insurance. With this BPJS, people who have a low socioeconomic status can use public health facilities instead of using private health facilities that do not receive BPJS. In the first year of implementing BPJS, he succeeded in increasing the possibility of people with lower middle income to carry out outpatient care in public facilities compared to other places. This will later have an impact on improving public health as a whole and can provide easy access for people who want to make visits to health facilities.[17]

Conclusions

Based on the results of this study, it can be concluded that socioeconomic factors in the form of father's education, mother's education, and father's income are significantly related to the time of first visit of pediatric patients with clubfoot to a health facility. Patients with low paternal education had a 3.5 times risk of having a first visit time of > 1 year compared to those with high paternal education. Patients with low maternal education had a risk of 3,212 times having a first visit time of > 1 year compared to those with high maternal education. Patients with low paternal income are 3,261 times more likely to have a first visit time of > 1 year compared to those with high paternal income.

The results of this study indicate that there are several socioeconomic factors that influence the time of the first visit of a pediatric patient with clubfoot to a health facility. The most important thing is the awareness of parents to bring their children for treatment early so that they can be treated before the deformity becomes difficult to correct.

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