IJO - INTERNATIONAL JOURNAL OF HEALTH SCIENCES AND NURSING
(ISSN: 2814-2098) Rakotoson M[1]*
https://ijojournals.com/ Volume 08 || Issue 03 || March, 2025 ||

EPIDEMIOLOGICAL PROFILE OF CLEFT LIP AND PALATE IN CHILDREN UNDER 15 FROM 2015 TO 2020 IN MADAGASCAR

Rakotoson M[1]*, Dally S[2], Soanasolo CM[2], Ralaiavy HH[2], Ratovoarisoa D[3], Ranjarisoa LN[4]

[1]*Department of Dentofacial Othopedics/ Institute of Tropical Odonto-Stomatology of Madagascar (IOSTM) ; Madagascar*

[2]*Department of Periodontics/ Institute of Tropical Odonto-Stomatology of Madagascar (IOSTM) ; Madagascar*

[3]*Department of Oral Surgery / Institute of Tropical Odonto-Stomatology of Madagascar (IOSTM) ; Madagascar*

[4]*Department of Public Health/ Institute of Tropical Odonto-Stomatology of Madagascar (IOSTM) ; Madagascar*

ABSTRACT

Introduction: Cleftlip and palate are the most common facial malformations, with prevalence varying between races and ethnic groups. They represent one of the major public health problems, often associated with severe malformations at high risk of infant mortality. Hospital prevalence in Madagascar was 4.66‰ in 2016. The overall objective of this study was to describe the epidemiological profile of cleftlip and palate in children under 15 years of age in Madagascar from 2015 to 2020.

Methodology: This was a retrospective descriptive study reporting epidemiological data of children under 15 years of age from 2015 to 2020 at 09 different sites in Madagascar. The sample size was exhaustive. Data were collected by counting, independent and dependent variables were analyzed on SPPSS 21.0 software by the chi2 test who se significance threshold was set at a $p<0.05$.

IJO - INTERNATIONAL JOURNAL OF HEALTH SCIENCES AND NURSING
(ISSN: 2814-2098)
Rakotoson M[1]*
https://ijojournals.com/ Volume 08 || Issue 03 || March, 2025 ||

Results: The epidemiological profile of childrenwithcleftlip and palate in Madagascar wasmarked by: apredominance of males, a lowsocio-economiclevel, a riskypre-gestationalmaternalstatus, and a multiparousfamily.

Discussion: Male predominance has been observed in similarstudies in Côte d'Ivoire and France. Scottish and American studies have demonstratedthat the existence of viral or parasitic infections duringpregnancyrepresents a risk of congenital malformation. In Madagascar, the birth of an infant with a highlydisfiguringcongenital malformation leads to deliberateneglect.

Conclusion: Cleftlip and palateremains a major public healthproblem in Madagascar.

Keywords : Child, Cleftpalate, Madagascar.

1. Introduction

Cleftlip and cleftpalate are the mostcommon facial malformations, withprevalencevaryingbetween races and ethnic groups [1]. They are a major public healthproblem, oftenassociatedwithsevere malformations [2]. Worldwide, an estimated 303,000 newborns die eachyearwithin four weeks of birth, due to congenital anomalies [2]. These malformations disruptseveralfunctions essential to the child's normal development: speech, hearing, dentition, as well as aestheticappearance and psychological balance. Future sequelae of thiscongenital condition may have an impact on aesthetics and function. The psychologicalconsequences of the malformation are veryserious, particularly for the parents, and can lead to familytragedy in the face of thismuch-desiredchild, and even for the childaftersurgery [3]. It isestimatedthatbetween 1/700 and 1/1000 live birthsworldwide are affected byof orofacialclefts for different populations around the world, withconsiderable variations linked to geographicalorigins, ethnicity and socio-economic conditions [4].The sex ratio is 0.5 (predominantlyfemale) [5]. In Europe, one childin 650 is a cleft carrier [4]. The lowestprevalenceisreportedamongAfrican-Americans, at around 0.5 per 1,000 births, and amongCaucasians, at around 1 per 1,000 births [5]. In South Africa, earlierstudies on

IJO - INTERNATIONAL JOURNAL OF HEALTH SCIENCES AND NURSING
(ISSN: 2814-2098)
Rakotoson M[1]*
https://ijojournals.com/ Volume 08 || Issue 03 || March, 2025 ||

thisprevalencewerecarried out in Cape Town, Johannesburg and Pretoria in the late 1980s. Reportedprevalencerangedfrom 0.1 to 0.4 per 1,000 live births [3]. In Madagascar, according to the study made by Rakotoarisonin 2012, the prevalence of cleftlip and palatewas 0.48‰ from 1998 to 2007 and washigher in the highlands [6]. A studydone in Mahajanga from 2007 to 2011 found a hospitalprevalence of 4.66%. The overallaim of thisstudywas to describe the epidemiological profile of cleftlip and palate in childrenunder 15 years of age in Madagascar from 2015 to 2020. The specific objectives were to describe the socio-epidemiological profile of childrenunder 15 and theirparents;Describe the prevalence of clefts in Madagascar; Identify the relationshipbetween the epidemiological profile and the type of cleft; Propose suggestions.

2. Materials and methods

This is a retrospective descriptive studyreportingepidemiological data of childrenunder 15 years of agefrom 2015 to 2020 at 09 different sites in Madagascar.

This article deals with a site of 200 children.

The studyranfromJanuary 01, 2015 to December 31, 2020.

Childrenunder 15 years of agewereincluded in the study.

Childrenunder 15 years of agewhose records could not beusedwereexcludedfrom the study.

The sample size was exhaustive.

The variables were :

 Patient information

Age, gender, place of residence, sibling rank, ethnicity, presence of other anomalies, presence of allergy.

 Information on parents (mother, father or guardian)

IJO - INTERNATIONAL JOURNAL OF HEALTH SCIENCES AND NURSING
(ISSN: 2814-2098)
https://ijojournals.com/
Volume 08 || Issue 03 || March, 2025 ||

Rakotoson M[1]*

Parents' age, socio-economiclevel, level of education, consanguinity, duration of pregnancy, complications duringpregnancy, complications at birth, toxic habits (tobacco, alcohol), medicationtakenduringpregnancy, folicacidtaken at birth, presence of cleft in the family, types of cleftlip and palate.

Data werecollectedethically, and independent and dependent variables wereanalyzedusing SPPSS 21.0 software, using the chi2 test with a significancethreshold of $p<0.05$.

3. Results

Table 1:Distribution of children by gender(N = 200)

Gender	Number (n = 173)	Percent (%)
Male	95	54,9
Female	78	45,1
Total	173	100

Table 2 : Distribution of children by parental consanguinity(N = 200)

Consanguinity	Number (n =173)	Percent (%)
Yes	31	17,9
No	142	82,1
Total	173	100

IJO - INTERNATIONAL JOURNAL OF HEALTH SCIENCES AND NURSING
(ISSN: 2814-2098)
https://ijojournals.com/
Volume 08 || Issue 03 || March, 2025 ||

Rakotoson M[1]*

Table 3 : Distribution of childrenaccording to theirmother's cigarette consumptionduringpregnancy(N = 200)

Consumptionduringpregnancy	Nombre (n = 173)	Pourcentage (%)
Yes	5	2,9
No	158	91,3
Unknown	10	5,8
Total	173	100

Table 4 : Distribution of childrenaccording to theirmother'salcoholconsumptionduringpregnancy(N = 200)

Consumptionduringpregnancy	Number (n = 173)	Percent (%)
No	160	92,5
Unknown	13	7,5
Total	173	100

Table 5 : Distribution of childrenaccording to the existence of cleftfamilymembers(N = 200)

Cleft Family members	Number (n = 173)	Percent (%)
Yes	20	11,6
No	146	84,4
Unknown	7	4,0
Total	173	100

IJO - INTERNATIONAL JOURNAL OF HEALTH SCIENCES AND NURSING
(ISSN: 2814-2098)
https://ijojournals.com/
Volume 08 || Issue 03 || March, 2025 ||

Table 6 : Distribution of childrenaccording to the existence of associatedcraniofacial malformations (N = 200)

Existence of associatedcraniofacial malformations	Number (n =173)	Percent (%)
Yes	4	2,3
No	115	66,5
Unknown	54	31,2
Total	173	100

Table 7 : Distribution of children by cleft type (N = 200)

Type of cleft	Number (n = 173)	Percent (%)
Labial cleft	42	24,3
Alveolar cleft	15	8,7
Palate cleft	38	22,0
Labio-alveolar cleft	16	9,2
Labio-palate cleft	34	19,7
Alveolo-palate cleft	3	1,7
Labio-alveolo-palate cleft	25	14,5
Total	173	100

4. Discussion

Males accounted for 54.9% of the population. Our studycorrelateswiththat of Colemann JR in 2001, whostatedthat "cleftlip and palate are twice as frequent in boys" [7]. The majority of childrenhadunilateralclefts. Studies by Anderson P in 1942 and Jensen BL in 1976-1981 confirmourstudythat "cleftlip tends to beunilateral (about 90%) and about two-thirdsoccur on the leftsideregardless of gender, ethnicity and severity of defect" [8]. Consanguinityisalsopresent. A study by Al-Johar A in 2008 in Saudi Arabia reportedthat: "the reportedprevalence of consanguinity in familieswithcleftlip and palate in Saudi Arabia ranges

IJO - INTERNATIONAL JOURNAL OF HEALTH SCIENCES AND NURSING
(ISSN: 2814-2098) Rakotoson M[1]*
https://ijojournals.com/ Volume 08 || Issue 03 || March, 2025 ||

from 6.7% to 83%, with a high prevalence of marriagesbetween first cousins" [9]. Some of the motherswerealcoholics. In 2007, Honein MA assertedthat "alcoholconsumption (particularly for cleftpalates) and/or smoking during the first threemonths of pregnancy are environmentalfactors in the development of cleftlip and palate" [10]. Rakotoarison RA in 2011 states that: "A particularityisobserved in the Vakinankaratra region, wherethisprevalenceis double that of otherregions. This wouldbe due to the existence of very high doses of radioactivity in certain areas of thisregion" [6]. The dysmorphologicalseverity of cleftlip and palateisassociatedwith the severity of the phenotype in terms of other malformations, with a striking trend. Bilateralcleftlip and palate cases are three times more likely to have anothersevere malformation thanunilateral cases" [11].

5. Conclusion

Cleftlip and palateremains one of the major public healthproblems in Madagascar.

The epidemiological profile of childrenwithcleftlip and palate in Madagascar wasmarked by male predominance, lowsocio-economicstatus, riskypre-gestationalmaternalstatus, and multiparousfamilies. According to ourresults, relationshipsbetweenepidemiological profile and types of cleftexisted.

However, the etiology of cleftlip and palateremainspoorlyknown in Madagascar, henceour plan to broadenourresearch by conducting an analyticalstudy of cleftlip and palate in Madagascar.

References

1.Bonaiti C. Briard M.L., Freingold J. An epidemiological and genetic study of facial cleft in France: epidemiology and frequency in relative. J Med Genet, 1982; 19:8-18.

IJO - INTERNATIONAL JOURNAL OF HEALTH SCIENCES AND NURSING
(ISSN: 2814-2098) Rakotoson M[1]*
https://ijojournals.com/ Volume 08 || Issue 03 || March, 2025 ||

2.PLo S One. Epidemiology and clinical profile of people withcleftlip and palateusingspecializeduniversitytreatment centers in South Africa. 2019;14(5).

3.Francannet C. Facial cleft and nutritionalfactors. Symposium of the EuropeanGenomutation Institute Groupama Foundation. Lyon. 2002.

4.Mange M, Campbell R, Gilyoma J, Magori CC, Kilalo M, Mazyala E et *al*. An assessment of orofacial clefts in Tanzania, Published online 2011, doi: 10.1186/1472-6831-11-5.

5.Omo-Aghoja VW, Omo-Aghoja LO, Ugboko VI, Obuekwe ON, Saheeb BDO, Feyi-Waboso P et *al*. Antenatal determinants of oro-facial clefts in Southern Nigeria. Afr Health Sci. 2010; 10(1):31-9.

6.Rakotoarison RA. Cleft lip and palate in Madagascar 1998-2007. British Journal of oral of oral and Maxillo-facial Surgery.2012; 50(5):430-4.

7.Coleman JR, Sykes JM. The embryology, classification, epidemiology and genetics of facial clefting. *Fac Plast Surg Clin.* 2001;**9**:1–13.

8. Fogh- Anderson P. Cleft lip and palate : Inheritance of Harelip and cleft palate. Munksgaard, Copenhagen, Calnan JS. Oparaexdomebiologiaehareditariae universities. 1942.

9. Al- Johar A, Ravichandran K, Subhani S. Pattern of cleft lip and palate in hospitalbased population in Saudi Arabia: retrospective study. CleftPalateCraniofac J. 2008; 45 : 592–6.

10. Honein MA, Rasmussen SA, Reefhuis J, Romitti PA, Lammer EJ, Sun L, et al. Maternal smoking and environmental tobacco smoke exposure and the risk of orofacial clefts. *Epidemiology*. 2007; 18 : 226–33.

11. Hagberg C, Larson O, Milerad J. Incidence of cleft lip and palate and risks ofadditional malformations. Cleft Palate Craniofac J. 1997; 35 : 40–5.