

# The Mental Foramen in Dry Human Mandibles of Adult South Africans: An Anatomical Study

El Foramen Mental en Mandíbulas Humanas Secas de Adultos Sudafricanos:  
Un Estudio Anatómico

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**SUMMARY:** The objective of the study was to investigate the position, position symmetry, shape and number of the mental foramen in a heterogeneous South African population. Knowledge of the precise position of MF in maxillofacial surgery is critical for an accurate local anaesthesia; and can provide a landmark in forensic or medico legal cases. Dry adult human mandibles (n = 325) were selected and classified by ancestry. The sample comprised male-to-female ratio of 1.2:1. Observations were made for the position, position symmetry, shape and number of the mental foramen. There was a substantial to perfect agreement ( $p < 0.001$ ) for most observations, except for the shape of the MF on the right side of the mandible that had a fair agreement ( $K = 0.25$ ;  $P > 0.05$ ). PIV of the MF is shown as the most prevalent position. PIII and IV were commonly observed in males and females respectively. PII was commonly observed in the males of European descent, while PIII was observed in male African and Mixed descents and female European descents. There was no significant difference in the symmetric analysis of MF amongst male and female ( $p = 0.059$ ) and between ancestry ( $p = 0.455$ ). But also, an oval shape of MF was the most common across subpopulations and ancestries, with 2 (2 %) and 3 (0.46 %) of the AMFs present. This study is the first comprehensive description of the MF in the South African population, and could be very useful in forensic anthropology in the South Africa population.

**KEY WORDS:** mental foramen; mandible; accessory mental foramen; mental nerve; ancestry; South Africa.

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## INTRODUCTION

The mental foramen (MF), which denotes the end of mental canal, is a funnel-like opening on the anterior surface of the mandible between the upper and lower margins (on each side) where each transmits the mental neurovascular bundle to the skin and mucosa of the lower lip, lower canine and premolar. Various reports on population specific (Sankar *et al.*, 2011; Udhaya *et al.*, 2013; Voljevica *et al.*, 2015) variations in the mental foramen exist in position (Fabian, 2007; Sankar *et al.*; Budhiraja *et al.*, 2013; Voljevica *et al.*), number (Sankar *et al.*; Udhaya *et al.*; Eboh & Oliseh, 2014; Paraskevas *et al.*, 2014; Voljevica *et al.*) and shape (Fabian; Sankar *et al.*; Budhiraja *et al.*; Udhaya *et al.*; Eboh & Oliseh) or occurrence of accessory foramina (Eboh & Oliseh) or in some unusual cases absent (de Freitas *et al.*, 1979; Chu *et al.*, 2014; Paraskevas *et al.*). Additionally, bilateral symmetric or asymmetric MF across the symphysis menti has scarcely been reported (Chu *et al.*).

Variation in shape of mental foramen has been reported in some populations, South Andhra Indians (Sankar *et al.*), Bosnians (Voljevica *et al.*), Tanzanian (Fabian), Nigerians (Eboh & Oliseh). Furthermore, occurrence of accessory mental foramen (AMF) has been reported in various population groups and may vary from one to three per individual in a population (de Freitas *et al.*; Hasan, 2011). Thus, prior knowledge of the variations of mental foramen in different population groups will be clinically important to avoid nerve damage, enabling successful and effective mental nerve block anaesthesia.

Since South Africa has a genetically diverse heterogeneous population, documentation of the position, number, shape and asymmetry, amongst others, of mental foramen in the subpopulation groups is critical to clinical practice to avoid iatrogenic injuries in dental and

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maxillofacial surgery and provide useful forensic anthropometric data. This study investigates the position, position symmetry, shape and number of mental foramen in a heterogeneous South African population using dry adult human mandibles, and compares our findings with recent data on some populations available in literature.

## MATERIAL AND METHOD

Two thousand nine hundred and one (2901) dry mandibles were randomly selected from the Kirsten collection at the Stellenbosch University, the Raymond A. Dart collection at the University of the Witwatersrand, and the Human skeletal collection at the University of Cape Town for the study. The sample comprised male and female mandibles from ancestry of African descents (AD - black population), mixed descent (MD - coloured population) and European descent (ED - white population). Two thousand five hundred and seventy-six (2576) dry mandibles were excluded, leaving 325 mandibles for the study due to the following criteria:

1. Mandibles of less than 20 years old
2. Adult mandibles of unknown sex and ancestry
3. Fractured mandibles or mandibles with oral pathology
4. Absence of 3 or more perimortem mandibular teeth between canine and second molar
5. Absence of more than one tooth above the MF.

In this study, we report the shape, position, number and symmetry or asymmetry of MF on the basis of sex and ancestry. A data collection form was designed and used to record the observations on both sides of the mandible; and the observations were repeated by the observer. The study was carried out under the Ethics Number S13/05/100 obtained from The Human Ethics Committee, Stellenbosch University.

**Horizontal position of mental foramen:** Mandibles were bilaterally assessed and placed on a flat surface such that the inferior margin of the ramus of the mandible had maximum contact when vertical pressure was applied to the mandible. A thin office pin was placed in the longitudinal axis of the canine to the first molar and then the observation of the position (P) of the MF relative to mandibular teeth was recorded following the Tebo & Telford (1950) classification. Thus, the position of the MF was recorded as either in line with the longitudinal axis of a tooth or as lying between two teeth.

Also, symmetry is determined when the MF is located at the same position on both sides (right and left) of the

mandible relative to the teeth. Therefore, the different positions of MF observed were categorized as follows:

- Position I (PI) - between the canine and 1st premolar
- Position II (PII) - at the apex of the 1st premolar
- Position III (PIII) - between 1st and 2nd premolar teeth
- Position IV (PIV) - at the 2nd premolar tooth
- Position V (PV) - between 2nd premolar and 1st molar
- Position VI (PVI) - at the level of 1st molar
- Position VII (P0) - directly below the canine

### **Shape and number of accessory mental foramen:**

Determination of the shape and number of MF was carried out by visual observation on both sides of the mandible and all observations were recorded. The shapes were as round or oval, while observation of more than one MF (accessory MF- AMF) was recorded as single, double or triple AMF (cluster).

**Statistical analysis.** Statistical Package for the Social Sciences (SPSS) version 21 (SPSS Inc., Chicago, IL, USA) was used to analyse the data. A Cohen's Kappa coefficient (K) was used as a measure of the internal consistency for the measurement;  $K \geq 0.7$  was considered satisfactory. Frequency distribution of the position of MF was obtained, and a chi-square test was used to perform analyses of position symmetry by sex and ancestry. A p-value of less than 0.05 was considered statistically significant, at a 95 % confidence interval.

## RESULTS

A total of three hundred and twenty-five dry mandibles used in the study were collected from Kirsten collection 71 (21.85 %); Raymond A. Dart collection 233 (71.69 %); and Human skeleton collection 21 (6.46 %). This sample collection consisted of 161(49.54 %) AD mandibles, 89 (27.38 %) MD mandibles and 75 (23.08 %) ED mandibles with total sex distribution of 178 (54.77 %) males and 147 (45.23 %) females with male-to-female ratio of 1.2:1. The mean age of the sample population was 46.18 (16.3) years. Kappa coefficients revealed substantial to perfect agreement ( $p < 0.001$ ) for most observations, except for the shape of the MF on the right side of the mandible that had a fair agreement ( $K = 0.25$ ;  $P > 0.05$ ).

**Position, shape and number of MF.** The present study showed that the most common distribution in the positions of MF on the right and left sides in AD and MD populations was PIII in the males (AD/MD: Male, L: 34.78 % / 63.77 % and R: 46.43 % / 62.5 %) and PIV in the females (AD/MD:

Table I. Distribution of the position, shape and number of MF by side, sex and ancestry (original document in supplement files).

Ancestry		Sex																							
		Male									Female														
		Position %			Shape %			AMF %			Position %			Shape %			AMF %								
I	II	III	IV	V	VI	0	round	oval	I	2	3	I	II	III	IV	V	VI	0	round	oval	I	2	3		
AD	L	1.45	28.98	34.78	30.43	2.9	0	1.45	17.4	82.6	17.4	4.3	1.4	0	5.43	35.87	5.217	4.35	2.17	0	10.9	89.1	23.9	3.3	0
	R	2.9	20.23	6.377	11.59	1.45	0	0	27.5	72.5	17.4	2.9	1.4	0	1.09	1.09	7.608	20.65	1.09	0	13	89.1	30.4	0	0
MD	L	3.57	21.43	4.643	21.43	5.36	0	1.79	30.4	69.6	26.8	1.8	0	0	0	24.24	60.61	12.12	0	0	18.2	81.8	33.3	3	0
	R	3.57	17.86	6.25	14.28	0	0	0	26.8	73.2	10.7	0	1.8	0	0	0	6.97	27.27	3.03	0	12.18	87.9	18.2	0	0
ED	L	11.32	43.4	3.208	13.21	0	0	0	11.3	88.7	20.8	1.9	0	4.55	31.82	36.36	27.27	0	0	0	9.1	90.9	22.7	0	0
	R	7.56	50.94	41.51	0	0	0	0	17	83	15.1	1.9	0	9.09	0	13.64	77.27	0	0	0	9.1	90.9	13.6	4.5	0
Total		5.06	30.47	46.84	15.5	1.62	0.3	0.54	21.73	78.26	18.03	2.13	0.76	2.27	6.39	18.67	60.51	10.73	1.05	0	12.08	88.41	26.68	1.8	0

AMF = accessory mental foramen; AD = African descent; MD = Mixed descent; ED = European descent; R = right mandible; L = left mandible. I: MF between the canine and 1st premolar; II: MF at the apex of the 1st premolar; III: MF between 1st and 2nd premolar teeth; IV: MF at the 2nd premolar tooth; V: MF between 2nd premolar and 1st molar; VI: MF at the level of the 1st molar; 0: MF below the canine.

Female, L: 52.17 % / 76.08 % and R: 60.61 % / 69.7 %), respectively. The PII of MF on the left and right sides in the males was common in ED population (L: 43.4 % and R: 50.94 %), whereas in ED females, MF PIII (L: 36.36 %) and IV (R: 77.27 %) were common on the left and right sides, respectively. Altogether, PIII (46.84 %) was the most common in distribution in males in the South African population, while in female it was PIV (60.51 %). Interestingly, the distribution of MF P0 (P0: 0.54 %) was observed only in males of AD (1.45 %) and MD (1.79 %) populations, on the left and right side of the mandible respectively.

The oval shaped foramen was bilaterally the most common distribution (81.8 %) across populations and by sex distribution as well (Male: 78.26 %, Female: 88.41 %). The round shaped foramen was bilateral only in ED females (L: 9.1 %; R: 9.1 %). Additionally, the number of AMF, were 1, 2 or 3 across subpopulations. Table I shows a single AMF as the highest occurrence of AMF observed in the population with a distribution of 18.03 % and 26.68 % in males and females, respectively.

The frequency of the positions of the MF per ancestry showed that PIV was the most frequent position in both AD and MD populations, followed by PIII and PII; while PII was frequent in the ED population, followed by PIII and PIV. PIV was the most frequent MF position (37.84 %) in this heterogeneous population.

Table II shows the symmetry analysis of MF position. In the AD subpopulation, most MF position was asymmetry in males (60.8 %) and females (58.7 %). However, the MF positions were mostly asymmetric (57.2 %) in males but symmetric (54.54 %) in females in the MD subpopulation. Interestingly, the ED subpopulation showed asymmetry in 77.27 % of female mandibles and symmetry in 54.72 % of male mandibles. The chi-square test showed that there was no significant difference in the symmetric analysis of MF amongst male and female (p = 0.059) and between ancestry (p = 0.455). Additionally, similarity in symmetry (percentage occurrence) was observed between the females of MD (54.54 %) and the males of ED (54.72 %), but asymmetry was similar between the females of MD (45.46 %) and the males of ED (45.28 %) subpopulations groups. The AD subpopulation group was distinct in symmetry and asymmetry.

The results of the assessment of AMF by ancestry and its frequency showed that 1 AMF had the highest frequency of occurrence across subpopulations; with the highest frequency (11.38 %) amongst AD, followed by MD (5.85 %) and ED (4.15 %) in decreasing order. While 3 AMFs were found amongst the AD and MD subpopulations, 2 AMFs were observed among the ED subpopulation.

Table II. Percentage of position symmetry of MF by sex and ancestry.

	Male		Female	
	Symmetry	Asymmetry	Symmetry	Asymmetry
AD	(27) 39.13 %	(38) 60.80 %	(42) 41.30 %	(54) 58.70 %
MD	(24) 42.86 %	(19) 57.20 %	(32) 54.54 %	(14) 45.46 %
ED	(29) 54.72 %	(5) 45.28 %	(24) 22.73 %	(17) 77.27 %

Ancestry (p = 0.455); Sex (p = 0.059).

**DISCUSSION**

The MF is often involved in certain steps of maxillofacial surgeries. It is especially important to identify its boundaries and to preserve it during surgery, trauma, and local anaesthesia (Fabian; Budhiraja *et al.*). The location and appearance of the MF are often determined by assessing some variables using panoramic radiography. Although it is recommended to cautiously use panoramic radiography for exact measurements and comparisons, previous studies have shown that there is a close relationship between the radiographic position of the MF and the skull (de Freitas *et al.*; Hasan; Chu *et al.*). The position of the MF in relation to the mandibular body is probably more precise, and is not affected by factors such as malocclusion, mesiodistal width of the tooth, race, nutrition, and age (Scheid, 2012). Additionally, MF position and position symmetry are important anatomical landmarks, critical in forensic or

medico legal cases because of the established racial variation among different population groups. Significant differences exist in the position, shape and symmetry of the MF among various ethnic groups and populations (Fabian; Haghanifar & Rokouei, 2009; Sankar *et al.*; Orhan *et al.*, 2013; Budhiraja *et al.*; Udhaya *et al.*; Chu *et al.*; Eboh & Oliseh; Paraskevas *et al.*; Voljevica *et al.*); because of this, the variation in the position of MF has been documented either according to the age, sex and race or in combinations, in different geographical regions and within the inhabitants of the same geographical area (Hasan). However, in most studies, the position of this foramen is assessed in relation to the teeth, as this is simpler to use in clinical applications (Tebo & Telford).

In maxillofacial surgical manoeuvres, knowledge of the precise position of MF is critical for accurate local anaesthesia essential in dental procedures and as well safeguard against mental neurovascular bundle damage during oral surgical procedures. The lack of consistent

Table III. Comparison of the present study with similar studies of the last decade.

Author	Study Group / no.	MF Position	MF Shape		AMF no. (%)	MF Symmetry %
			R/O	%		
Paraskevas <i>et al.</i> (2014)	Greek n = 96	-	-	-	1 (4.17)	-
Voljevica <i>et al.</i> (2015)	Bosnia and Herzegovina n = 150	III	Oval	83.3	1 (2.7)	-
Eboh & Oliseh (2014)	Nigerians n = 54	IV	Oval	63.6	- (23.1)	-
Chu <i>et al.</i> (2014)	Brazilian n = 191	III	-	-	- (13.6)	56
Udhaya <i>et al.</i> (2013)	South Indian n = 90	IV	Oval	83.33	1 (5.5)	-
Budhiraja <i>et al.</i> (2013)	North India n = 105	IV	Oval	74.3	-	-
Fabian (2007)	Tanzanian Males n = 100	IV	Oval	54	-	78
Present study	South African n = 325	IV	Oval	83.1	1(21.38) 2 (2.0) 3 (0.46) (23.84)	43.7
	African descent (AD) n = 161	IV	Oval	82.8	1 (22.98) 2 (2.48) 3 (0.62) (26.08)	60.8
	Mixed descent (MD) n = 89	IV	Oval	78.1	1 (21.35) 2 (1.12) 3 (0.56) (23.03)	57.2
	European descent (ED) n = 75	II	Oval	88.4	1 (18.0) 2 (2.0) 3 (0.0) (20)	54.72

MF = mental foramen; AMF = accessory mental foramen; R/O = round/oval; II: MF at the apex of the 1st premolar; III: MF between 1st and 2nd premolar teeth; IV: MF at the 2nd premolar tooth.

anatomic landmarks and inability to clinically palpate the mental foramen during clinical manoeuvres may explain the intense attention the subject has received from researchers using either advanced radiographic imaging techniques (Haghanifar & Rokouei; Orhan *et al.*; Currie *et al.*, 2016), cadaveric or dry human materials (Fabian; Sankar *et al.*; Budhiraja *et al.*; Udhaya *et al.*; Chu *et al.*; Eboh & Oliseh; Voljevica *et al.*). In South Africa, due to inherited admixed ancestry arising from colonization, there is a diverse genetic constitution of the population implying a great variability in the skeletal stature and structure of the different racial groups. Consequently, variation in the anthropological parameters is important in identification of skeletal remains in forensic and/or medico legal cases. Besides, success of surgical procedures requiring mental nerve block for the different subpopulation groups is contingent on accurate knowledge of the MF position, shape and number and position symmetry existing in these subpopulation groups. The importance of this study among the heterogeneous South African population therefore cannot be over emphasised.

In the present study, we found clear ancestry- and sex-specific differences in the position of the MF not previously reported. Position IV of the MF is shown as the most prevalent in South African subpopulations. Positions III and IV were commonly observed in males and females respectively. However, in terms of ancestry and sex, position II was commonly observed in the males of ED while position III was observed in AD and MD males and ED female subpopulations; signifying differences in MF position between the South African males AD and MD and their ED counterparts as well as among the females of the various subpopulation groups. These variations may be the result of varying degrees of genetic admixture between ancestral groups. However, globally, previous studies have shown that PIII (Chu *et al.*; Voljevica *et al.*) and IV (Sankar *et al.*; Udhaya *et al.*; Budhiraja *et al.*; Eboh & Oliseh; Voljevica *et al.*) are the commonly reported MF positions. Position III is common among Bosnian and Herzegovinians (Voljevica *et al.*) and Brazilians (Chu *et al.*); while PIV is common among North Indians (Budhiraja *et al.*), Tanzanian (Fabian), South Andra Indians (Sankar *et al.*), South Indians (Udhaya *et al.*) and Nigerians (Eboh & Oliseh). These findings are similar to our observations among South Africa AD and MD males and ED females in the present study. Additionally, the presence of a foramen below the canine (P0) in male of AD (1.45 %) and MD (1.79 %) subpopulations was an interesting outcome, not reported in the MF classification (Tebo & Telford). Variability in MF position may be related to different feeding habits, subsequently affecting mandibular development (Fabian; Yesilyurt *et al.*, 2008) and may be the case in MF positions among South Africans. Overall, the most common position of MF amongst South Africans of ED is PII followed by PIII.

As anatomical landmarks, MF position and position symmetry are important and helpful in forensic or medico legal cases population groups. The distinct in symmetry and asymmetry identified amongst the AD subpopulation group (as against MD and ED subpopulations) suggests genetic influence on these parameters which is very important in clinical practice for successful mental nerve block. Nevertheless, there was no significant difference in the symmetric analysis of MF amongst male and female ( $p = 0.059$ ) and between ancestry ( $p = 0.455$ ).

In this study, an oval shape of MF was the most common across population groups and ancestry and is in line with most international previous reports (Udhaya *et al.*; Eboh & Oliseh; Paraskevas *et al.*; Voljevica *et al.*). The high frequency of occurrence of the oval shape is similar to what was reported in Bosnia and Herzegovina (Eboh & Oliseh), North India (Udhaya *et al.*) and South India (Fabian). Factors responsible for predominant oval shape of MF are not clearly known, but may be unrelated to the embryonic factors operating during the development of the mandible and feeding patterns. About 23.84 % of the studied population presented with multiple MF reaching a maximum of 3 AMFs in AD and MD populations. But, the presence of 1 AMF was frequent across the subpopulation groups. Unlike earlier reports (Fabian; Budhiraja *et al.*; Chu *et al.*; Eboh & Oliseh), this study shows that there are 2 (2 %) and 3 (0.46 %) AMFs present in the South African population. Naturally, an AMF occurs from the branching of the inferior alveolar nerve prior to the formation of the mental canal (Dario, 2002; Naitoh *et al.*, 2009). Ignorance of its existence may result in unforeseen damage to the neurovascular bundles or unsuccessful mental nerve block. Consequently, the application of Champy techniques in maxillofacial surgery in the South African population will more likely affect the mental nerve. Furthermore, the high prevalence of one AMF in AD and MD populations is consistent with an earlier report on African population by Eboh & Oliseh probably suggesting genetic influence from African ancestry in this case. The results were compared with similar studies in the last decade as presented in Table III.

In the last decade various reports on the position of MF (Table IV) have mostly utilized radiographic imaging techniques. Very few of these authors reported the frequency of MF position (Haghanifar & Rokouei; Orhan *et al.*; Currie *et al.*) and position symmetry (Haghanifar & Rokouei; Kqiku *et al.*, 2013) in the different studied populations. The most common shape of the foramen reported was oval (Kqiku *et al.*) similar to our study, still, the only study (Haghanifar & Rokouei) that reported the frequency of position symmetry presented a very high frequency (85 %) compared to our study (ED Male: 54.72 %; MD Female: 54.54 %). The results

Table IV. Studies of the MF position in the last decade using radiographic materials.

	Zmyslowska-Polakowska <i>et al</i> 2017	Currie <i>et al</i> 2016	Iwanaga <i>et al</i> 2016	Leite <i>et al</i> 2014	Cantekin <i>et al</i> 2014	Imada <i>et al</i> 2014	Kçitku <i>et al.</i> 2013	Orhan <i>et al</i> 2013	Sisman <i>et al</i> 2012	Naitoh <i>et al</i> 2009	Haghanifar and Rokouei, 2009
Study group	Poland	UK	Japan	Brazil	Turkey	Brazil	kosovo	Turkey	Turkey	Japan	Iran
MF Position	-	III	-	-	-	-	III, IV	III	-	-	III, IV
Shape	-	-	-	-	-	-	Oval	-	-	-	-
AMF %	7%	14,3%	-	3,2%	6.5%	3%	-	6,34%	2%	7%	-
MF symmetry	-	-	-	-	-	-	-	-	-	-	85.7%

MF = Mental foramen; AMF = accessory mental foramen; III: MF between 1<sup>st</sup> and 2<sup>nd</sup> premolar teeth; IV: MF at the 2<sup>nd</sup> premolar tooth.

from studies of MF using radiographic imaging techniques (Haghanifar & Rokouei; Orhan *et al.*; Currie *et al.*) are consistent with the results of our present study, confirming that there is a relationship between the radiographic position of the MF and the skull (de Freitas *et al.*; Hasan; Chu *et al.*). Actually, the results from these studies on the frequency of AMF occurrence was limited to only 1 AMF, with no similarity in the frequency of occurrence of 1 AMF in our studied population. This discrepancy may be due to the poor visualization of AMF on 2-dimensional imaging techniques (Haktanir *et al.*, 2010; Fuakami *et al.*, 2011; Muinelo-Lorenzo *et al.*, 2015), especially when the diameter of AMF are less than 1.5 mm (Katakami *et al.*, 2008) or when individual populations are over 50 years of age (Muinelo-Lorenzo *et al.*).

**CONCLUSION**

Knowledge of the position of the mental foramen and the number of accessory mental foramen in a heterogeneous South African population will prevent mental nerve damage during surgery. This study is the first comprehensive description of the mental foramen in the South African population and its ancestry subgroups. The observations in this study could also be very useful in forensic anthropology in the South African population. However, the morphometric analysis of the vertical and horizontal position of mental foramen and the relative positions of the accessory mental foramen in the mandible of South African populations warrant further research.

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**MCKAY, C.; TCHOKONTE-NANA, V. & MBAJIORGU, E. F.** El foramen mental en mandíbulas humanas secas de adultos sudafricanos: un estudio anatómico. *Int. J. Morphol.*, 36(4):1361-1367, 2018.

**RESUMEN:** El objetivo de este estudio fue investigar, en una población sudafricana heterogénea, la posición, simetría de posición, forma y número de forámenes mentales (FM) . El conocimiento de la localización exacta del FM en la cirugía maxilofacial es crítico para una anestesia local precisa y puede proporcionar un punto de referencia en casos legales forenses o médicos. Se seleccionaron 325 mandíbulas humanas secas adultas y clasificadas por ascendencia. La muestra relación hombre-mujer fue de 1,2:1. Las observaciones fueron realizadas para la posición, simetría de la posición, forma y el número forámenes mentales. Se alcanzó la perfección de concordancia (p < 0,001) para la mayoría de las observaciones, a excepción de la forma intermedia en el lado derecho de la mandíbula el cual presentó un acuerdo justo (K = 0,25; p > 0,05). La PIV de la MF se muestra como la posición más prevalente. PIII y IV fueron observados comúnmente en hombres y mujeres, respectivamente. La PII se observó comúnmente en los varones de ascendencia europea, mientras que el PIII se observó en descendientes africanos y mixtos masculinos y descendientes femeninos europeos. No hubo diferencias significativas en el análisis simétrico del FM entre hombres y mujeres (p = 0,059) y entre ascendencia (p = 0,455). Una forma ovalada de FM fue la más común a través de subpoblaciones y ancestros, con 2 (2 %) y 3 (46 %) del con la presencia de un foramen mental accesorio. Este estudio es la primera descripción comprensiva del FM en la población sudafricana, y podría ser muy útil en antropología forense en la población de Sudáfrica.

**PALABRAS CLAVE:** Foramen mental; Mandíbula; Foramen mental accesorio; Nervio mental; Ascendencia; Sudáfrica.

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