Available online at https://www.mmpubl.com/

International Journal of Cranio-Maxillofacial Surgery & Rehabilitation

Original Research

Assessment of the Length of the Index Finger and the Little Finger in Correspondence to Stature among the Female Population

Rinieshah Nair R.Baskran

Consultant Dental Surgeon, 71450 Senawang, Negeri Sembilan, Malaysia.

How to cite: *Baskran R N R . Assessment of the Length of the Index Finger and the Little Finger in Correspondence to Stature among the Female Population – Original Research . Int J Cranio Maxillofac Surg Rehab Volume 2022, Article ID 22175264, 6 pages.*

Received:27/01/22 *Accepted:07/02/22* *Web Published:21/02/22*

Abstract

Aim: To investigate the length of the index finger and the little finger and their correspondence to stature among the female population.

Materials and methods: Participants included 50 females from a dental college. They were of age ranging from 17 to 30. The length of the little finger and the index finger were measured using vernier calipers from the tip of the finger to the distal end of the palm. The stature of an individual was measured using a standard measuring frame. All measurements were taken thrice and the average of the three measurements was used. All the measurements were tabulated and a linear regression equation was calculated using SPSS software.

Results: The correlation coefficient [r] for all fingers was found to be $0.4 < |r| < 0.7$. Hence the lengths of both index and little fingers of both right and left hands have a moderate correlation with stature.

Conclusion: Among the two fingers measured both the index finger and little finger of both the right and left hands had a moderate correlation in the estimation of stature in females.

Keywords: *Innovative, Stature estimation, Little finger, Index finger, Finger length*

Address for Correspondence:
Rinieshah Nair R.Baskran,BDS
Consultant Dental Surgeon,
No 255 jalan SP 9, Taman Senawang Perdana, 71450 Senawang,
Negeri Sembilan, Malaysia.
Email: merlinian.75@gmail.com
Mobile No: 0060123512614

INTRODUCTION

The Stature is the height of an individual in an upright position. The stature of a person plays a significant role in the identification and significant forensic investigation [1]. It happens to be one of the most vital aspects of anthropological research as well as medical constitution and enactment [2,3]. During a forensic investigation, a dead body that was initially unidentifiable can be identified with the help of stature [4,5]. However, during a mass disaster, like hurricanes and earthquakes, the process of identification for everybody may be a challenge. Some of the body parts may be dismembered. Regarding this fact-finding process, different research of different depths has been conducted, mainly comparing the stature of an individual with the length of the index finger and the little finger [6].

While commencing this research, three of the many factors that affect the results include race, lifestyle, and age. Our team has extensive knowledge and research experience that has translated into high-quality publications [7-26]. This research was conducted to evaluate the length of the index finger and the little finger and their correspondence to stature among the female population.

MATERIALS AND METHODS

Participants included 50 females from a dental college. They were of age ranging from 17 to 30. After getting informed consent the length of the little finger (Figure 1) and the index finger (figure 2) was measured using a vernier caliper from the tip of the finger to the distal end of the palm. The stature of an individual was measured using a standard measuring frame. All measurements were taken thrice and the average of the three measurements was used. All the measurements were tabulated and a linear regression equation was calculated using SPSS software (version 23).

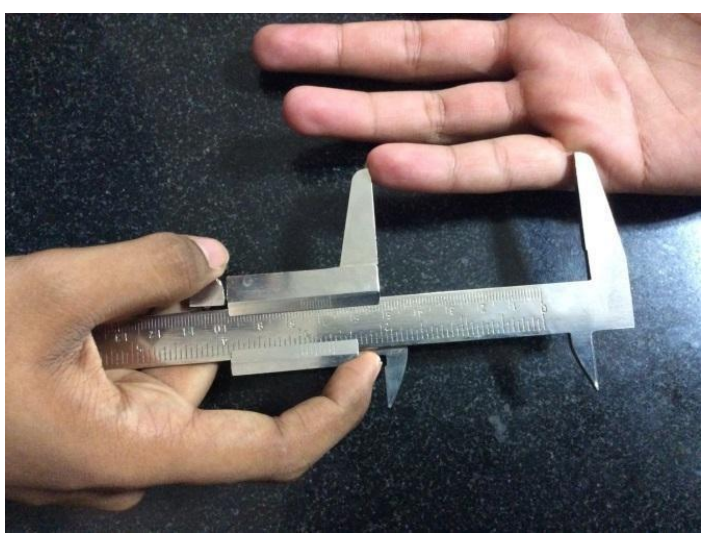

Figure 1: Measurement of the length of the little finger

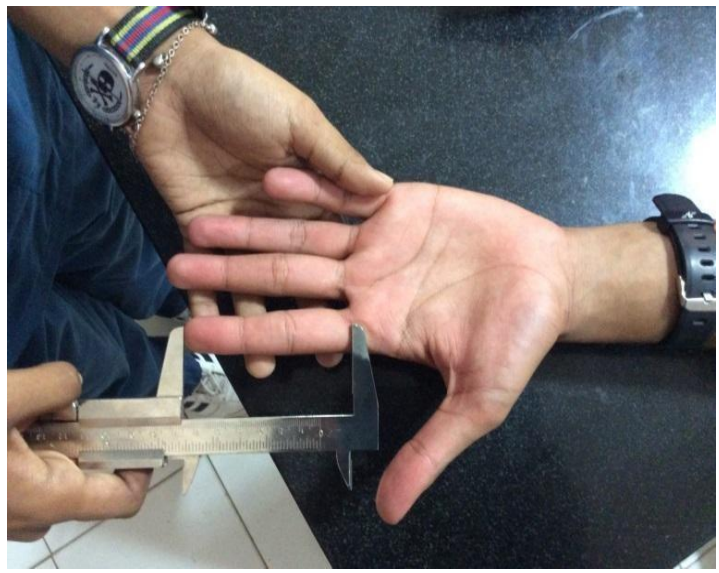

Figure 2: Measurement of the length of the index finger

RESULTS

Table 1 shows the values of the regression equation for estimation of height (Y) from Finger length (X) in females, a and b are constant.

	Right index finger	**Left Index Finger**	**Right Little finger**	**Left little finger**
n	50	50	50	50
Mean of finger length (X in cms)	10.33	10.28	8.85	8.82
Mean of height (Y in cms)	163.48			
Correlation Coefficient	0.555	0.581	0.517	0.503
A	56.01	41.96	90.36	92.67
B	10.39	11.81	8.25	8.02

By using the data from table1 the linear regression was calculated to be, Y= a +bx

For Right index finger length, Y = 56.01 + 10.39X, r=0.555,

For Left Index finger length, Y = 41.96 + 11.81X, r=0.581

For Right little finger length, Y = 90.36 + 8.25X, r=0.517

For Left little finger length, Y = 92.67+ 8.02X, r=0.503

Where, x= Finger length in cm

Y= Height in cm

Correlation coefficient [r] for all fingers was found to be $0.4 < |r| < 0.7$ hence the length of both index and little fingers of both right and left hands has a moderate correlation with stature.

DISCUSSION

In the past, there have been many studies have been carried out to estimate the height of a person by measuring the length of various bones [27,28]. This study is done on people from a dental college to determine the relationship between the length of the index and little fingers and the height of a person. Based on the results obtained, the estimation of stature by using long bones is much more accurate [29]. Tyagi et al however had a different result and suggested that the best finger to estimate the height of a person is by calculating the length of the index finger [30]. Hamill et al obtained results and observed that the correlation between stature and the fingers was accurate [31]. There was no bilateral variation of the right and left fingers. The study was limited to a small sample size of females only, in the future, larger sample sizes and measurements can be made using both genders.

CONCLUSION

Stature estimation is usually done using various parts of the body and from the present study, the index finger and little finger of both the right and left hands had a moderate correlation in the estimation of stature in females.

Financial support and sponsorship - Nil

Conflicts of interest - There are no conflicts of interest

REFERENCES

1. Rastogi P, Kanchan T, Menezes RG, Yoganarasimha K. Middle finger length--a predictor of stature in the Indian population. Med Sci Law. 2009 Apr;49(2):123–6.

2. Asadujjaman M, Hossain MG, Rana MS, Islam MZ. Stature estimation from handprint measurements: an application to the medicolegal investigation. Egypt J Forensic Sci. 2021 Jan 7;11(1):1.

3. Çakı İE, Karadayı B, Çetin G. Relationship of injuries detected in fatal falls with sex, body mass index, and fall height: An autopsy study. J Forensic Leg Med. 2021 Feb;78:102113.

4. Bonicelli A, Zioupos P, Arnold E, Rogers KD, Xhemali B, Kranioti EF. Age-related changes of rib cortical bone matrix and the application to forensic age-at-death estimation. Sci Rep. 2021 Jan 22;11(1):2086.

5. Gupta R, Nayyar AK, Bhagat OL. Stature Estimation from Measurements of Inferior Extremity in Different Stature Groups of Western Indian Population. Mymensingh Med J. 2020 Oct;29(4):969–76.

6. Bhatnagar DP, Thapar SP, Batish MK. Identification of personal height from the somatometry of the hand in Punjabi males. Forensic Sci Int. 1984 Feb;24(2):137–41.

7. Sekar D, Lakshmanan G, Mani P, Biruntha M. Methylation-dependent circulating microRNA 510 in preeclampsia patients. Hypertens Res. 2019 Oct;42(10):1647–8.

8. Princeton B, Santhakumar P, Prathap L. Awareness on Preventive Measures taken by Health Care Professionals Attending COVID-19 Patients among Dental Students. Eur J Dent. 2020 Dec;14(S 01):S105–9.

9. Logeshwari R, Rama Parvathy L. Generating logistic chaotic sequence using geometric pattern to decompose and recombine the pixel values. Multimed Tools Appl. 2020 Aug;79(31-32):22375–88.

10. Johnson J, Lakshmanan G, M B, R M V, Kalimuthu K, Sekar D. Computational identification of MiRNA-7110 from pulmonary arterial hypertension (PAH) ESTs: a new microRNA that links diabetes and PAH. Hypertens Res. 2020 Apr;43(4):360–2.

11. Paramasivam A, Priyadharsini JV, Raghunandhakumar S, Elumalai P. A novel COVID-19 and its effects on cardiovascular disease. Hypertens Res. 2020 Jul;43(7):729–30.

12. Pujari GRS, Subramanian V, Rao SR. Effects of Celastrus paniculatus Willd. and Sida cordifolia Linn. in Kainic Acid Induced Hippocampus Damage in Rats. Ind J Pharm Educ. 2019 Jul 3;53(3):537–44.

13. Rajkumar KV, Lakshmanan G, Sekar D. Identification of miR-802-5p and its involvement in type 2 diabetes mellitus. World J Diabetes. 2020 Dec 15;11(12):567–71.

14. Ravisankar R, Jayaprakash P, Eswaran P, Mohanraj K, Vinitha G, Pichumani M. Synthesis, growth, optical and third-order nonlinear optical properties of glycine sodium nitrate single crystal for photonic device applications. J Mater Sci: Mater Electron. 2020 Oct;31(20):17320–31.

15. Wu S, Rajeshkumar S, Madasamy M, Mahendran V. Green synthesis of copper nanoparticles using Cissus vitiginea and its antioxidant and antibacterial activity against urinary tract infection pathogens. Artif Cells Nanomed Biotechnol. 2020 Dec;48(1):1153–8.

16. Vikneshan M, Saravanakumar R, Mangaiyarkarasi R, Rajeshkumar S, Samuel SR, Suganya M, et al. Algal biomass as a source for novel oral nano-antimicrobial agent. Saudi J Biol Sci. 2020 Dec;27(12):3753–8.

17. Alharbi KS, Fuloria NK, Fuloria S, Rahman SB, Al-Malki WH, Javed Shaikh MA, et al. Nuclear factor-kappa B and its role in inflammatory lung disease. Chem Biol Interact. 2021 Aug 25;345:109568.

18. Rao SK, Priya AK, Kamath SM, Karthick P, Renganathan B, Anuraj S, Sastikumar D, Jeyadheepan K, Gopalakrishnan C. Unequivocal evidence of enhanced room temperature sensing properties of clad modified Nd doped mullite Bi2Fe4O9 in fiber optic gas sensor. Journal of Alloys and Compounds. 2020 Oct 15;838:155603.

19. Bhavikatti SK, Karobari MI, Zainuddin SLA, Marya A, Nadaf SJ, Sawant VJ, et al. Investigating the Antioxidant and Cytocompatibility of Mimusops elengi Linn Extract over Human Gingival Fibroblast Cells. Int J Environ Res Public Health. 2021 Jul 4;18(13).

20. Marya A, Karobari MI, Selvaraj S, Adil AH, Assiry AA, Rabaan AA, et al. Risk Perception of SARS-CoV-2 Infection and Implementation of Various Protective Measures by Dentists Across Various Countries. Int J Environ Res Public Health. 2021 May 29;18(11).

21. Barma MD, Muthupandiyan I, Samuel SR, Amaechi BT. Inhibition of Streptococcus mutans, antioxidant property, and cytotoxicity of novel nano-zinc oxide varnish. Arch Oral Biol. 2021 Jun;126:105132.

22. Vijayashree Priyadharsini J. In silico validation of the non-antibiotic drugs acetaminophen and ibuprofen as antibacterial agents against red complex pathogens. J Periodontol. 2019 Dec;90(12):1441–8.

23. Priyadharsini JV, Girija AS, Paramasivam A. In silico analysis of virulence genes in an emerging dental pathogen A. baumannii and related species. Archives of oral biology. 2018 Oct 1;94:93-8.

24. Uma Maheswari TN, Nivedhitha MS, Ramani P. Expression profile of salivary micro RNA-21 and 31 in oral potentially malignant disorders. Braz Oral Res. 2020 Feb 10;34:e002.

25. Gudipaneni RK, Alam MK, Patil SR, Karobari MI. Measurement of the Maximum Occlusal Bite Force and its Relation to the Caries Spectrum of First Permanent Molars in Early Permanent Dentition. J Clin Pediatr Dent. 2020 Dec 1;44(6):423–8.

26. Chaturvedula BB, Muthukrishnan A, Bhuvaraghan A, Sandler J, Thiruvenkatachari B. Dens invaginatus: a review and orthodontic implications. Br Dent J. 2021 Mar;230(6):345–50.

27. YP RB. Forensic Medicine: Prep Manual for Undergraduates-E-Book. Elsevier Health Sciences; 2016 Jun 22.

28. Guy WA. Principles of forensic medicine. Harper & brothers; 1845.

29. Komlos AU. Stature, living standards, and economic development: Essays in anthropometric history. University of Chicago Press; 1994 Dec 12.

30. Tyagi R, Tungdim MG, Bhardwaj S, Kapoor S. Age, altitude and gender differences in body dimensions. Anthropologischer Anzeiger. 2008 Dec 1:419-34.

31. Hamill PV, Johnston FE, Lemeshow S. Body weight, stature, and sitting height: white and Negro youths 12-17 years, United States. US Department of Health, Education, and Welfare, Public Health Service, Health Resources Administration, National Center for Health Statistics; 1973.

Published by MM Publishers
https://www.mmpubl.com/ijcmsr