International Journal of Medical Sciences And Clinical Research (ISSN – 2771-2265)
VOLUME 04 ISSUE 01 PAGES: 47-52
SJIF IMPACT FACTOR (2021: 5. 694) (2022: 5. 893) (2023: 6. 184)
OCLC – 1121105677
Crossref doi Google Scholar WorldCat MENDELEY
Publisher: Oscar Publishing Services

OSCAR PUBLISHING SERVICES

Journal Website: https://theusajournals.com/index.php/ijmscr

Research Article

THE ROLE OF ANTHROPOMETRY IN THE DIAGNOSIS AND ASSESSMENT OF NASAL DEFORMITIES: A LITERATURE REVIEW

Submission Date: January 20, 2024, **Accepted Date:** January 25, 2024,
Published Date: January 30, 2024
Crossref doi: https://doi.org/10.37547/ijmscr/Volume04Issue01-09

Sh.A. Boymuradov
Tashkent Medical Academy, Tashkent, Uzbekistan

B.K. Narmuratov
Tashkent Medical Academy, Tashkent, Uzbekistan

Sh.Sh. Yusupov
Tashkent Medical Academy, Tashkent, Uzbekistan

Sh.D. Dzhamoliddinov
Tashkent Medical Academy, Tashkent, Uzbekistan

K.S. Asrorova
Tashkent Medical Academy, Tashkent, Uzbekistan

ABSTRACT

This scientific literature review comprehensively explores the role of anthropometry in the diagnosis and treatment of nasal deformities. Key methods, including computer tomography, three-dimensional photogrammetry, and 3D scanning, ensuring high precision in the analysis of anatomical features, are discussed. The significance of anthropometric data in personalized medicine, encompassing the prediction of surgical outcomes and the development of individualized treatment plans, is highlighted. The literature analysis underscores the evolution of methods, emphasizing prospects for further research, including in the fields of genetics and physiology. In conclusion, the importance of integrating cutting-edge technologies into clinical practice for enhanced treatment outcomes and patient satisfaction is emphasized.

KEYWORDS

International Journal of Medical Sciences And Clinical Research
(ISSN – 2771-2265)
VOLUME 04 ISSUE 01 PAGES: 47-52
SJIF IMPACT FACTOR (2021: 5. 694) (2022: 5. 893) (2023: 6. 184)
OCLC – 1121105677
Crossref doi Google Scholar WorldCat MENDELEY
Publisher: Oscar Publishing Services

Anthropometry, Nasal Deformities, Medical Diagnosis, Personalized Medicine, Nasal Surgery, Computer Tomography, Three-Dimensional Photogrammetry, 3D Scanning.

INTRODUCTION

In modern medical practice, attention to detail and precision in measurements have become integral components of diagnosis and surgical interventions. In this context, anthropometry, as a systematic method of measuring anatomical parameters, is garnering increasing attention from researchers and practising physicians. This article specifically focuses on the role of anthropometry in the diagnosis and assessment of nasal deformities, where measurement accuracy is of paramount importance.

Anthropometric measurements conducted at various levels not only allow for quantifying the dimensions and shape of the nose but also provide valuable information about the soft tissue structure. This information becomes a crucial tool for preliminary diagnosis, surgical planning, and subsequent monitoring of results.

The literature review in this article aims to systematize and critically analyze previous studies related to the application of anthropometry in the context of nasal deformities. Emphasis is placed on both classical and innovative methods used for anthropometric measurement and their application in the diagnosis and surgical treatment of nasal deformities. Reviewing the literature identifies current trends and prospects for further research in this field, directed towards refining methods and increasing their clinical significance.

The definition of anthropometry and its significance in medical diagnosis: Anthropometry, derived from the Greek words "Anthropos" (human) and "metron" (measurement), is a scientific method of systematic measurement and analysis of physical parameters of the human body [1]. These measurements include length, width, height, volume, and angles characterizing various anatomical areas, including facial structures, particularly the nose. Anthropometry's methodology in the medical field has become especially important due to its ability to provide quantitative data about the physical characteristics of the human body. In the context of diagnosing nasal deformities, anthropometry offers a unique opportunity to measure parameters such as nasal bridge height, nasal bone width, and angles of inclination, allowing for a detailed assessment of nasal structure with a high degree of precision [2].

These measurements obtained through anthropometry constitute an integral element in the medical arsenal, enabling the creation of a more comprehensive understanding of the morphological

International Journal of Medical Sciences And Clinical Research
(ISSN – 2771-2265)
VOLUME 04 ISSUE 01 PAGES: 47-52
SJIF IMPACT FACTOR (2021: 5. 694) (2022: 5. 893) (2023: 6. 184)
OCLC – 1121105677
Crossref doi Google Scholar WorldCat MENDELEY
Publisher: Oscar Publishing Services

characteristics of the nose. This, in turn, contributes to precise diagnosis and the determination of treatment strategies for deformities. It is important to note that precision data obtained through anthropometry not only supports medical interventions but also allows the development of personalized treatment plans, a key element in effective medical practice [3].

Anthropometry and Nasal Deformities: A Literature Review. Significant progress in anthropometry concerning nasal deformities demonstrates the richness of academic discourse on this topic. In this literature review section, existing studies focusing on anthropometric methods in studying anatomical features of the nose in various deformities are examined. Several works underscore the importance of anthropometric data for the differential diagnosis of nasal deformities. Studies conducted by [4] propose an integrated approach to anthropometry, covering a broad spectrum of parameters related to the length and width of the nose, including measurements of nasal openings and angles.

Other studies [5] employ three-dimensional photogrammetry technologies to create accurate nose models, enabling a more comprehensive assessment of volumetric characteristics, crucial in surgical intervention planning. Noteworthy are studies [6] deepening the understanding of anthropometry through the use of computer tomography to generate three-dimensional nose models. This method provides a higher level of detail, especially regarding internal structures, applicable in diagnosing not only external but also internal deformities.

The comprehensive literature review also highlights a trend toward in-depth exploration of morphological aspects of the nose in various population groups and national characteristics [7], emphasizing the importance of a personalized approach in medical practice.

Methods of Anthropometry in the Diagnosis of Nasal Deformities. In the realm of diagnosing nasal deformities using anthropometry, progressive measurement methods provide extensive research opportunities, enabling a deeper analysis of anatomical features. This section of the article covers key methods applied in anthropometry for diagnosing nasal deformities, providing brief descriptions and analyses.

Computer tomography has become an indispensable tool in nasal anthropometry, offering three-dimensional images that provide high detail of both external and internal structures [8]. The application of CT scanning allows the analysis of not only external nasal shapes but also internal anatomical features, such as cartilage deformations and nasal bone lengths. Three-dimensional photogrammetry, utilized in anthropometry, enables the creation of precise three-dimensional models of the face and nose based on

International Journal of Medical Sciences And Clinical Research
(ISSN – 2771-2265)
VOLUME 04 ISSUE 01 PAGES: 47-52
SJIF IMPACT FACTOR (2021: 5. 694) (2022: 5. 893) (2023: 6. 184)
OCLC – 1121105677
Crossref doi Google Scholar WorldCat MENDELEY
Publisher: Oscar Publishing Services

two-dimensional images [9]. This method allows for measuring volumetric parameters and assessing morphology with a high degree of precision, especially in the context of nasal deformities.

3D scanning is a method successfully employed for anthropometric analysis of the nose [10]. It provides comprehensive data and high measurement accuracy, allowing for a more precise evaluation of the shape, volume, and relative positions of various nasal structures.

There are also several specialized anthropometric instruments designed to assess the soft tissues of the nose, such as the length of the cartilaginous part, the shape of the nasal dorsum, and the width of the nasal bridge [11]. These instruments facilitate more detailed and differentiated measurements, which are crucial in the assessment of deformities.

The Role of Anthropometry in Personalized Medicine. In modern healthcare, the concept of personalized medicine is gaining increasing importance, and anthropometry plays a substantial role in the pursuit of an individualized approach to treatment. Let's examine how anthropometric data contributes to the personalization of diagnosis and treatment, providing unique information about patients' physical characteristics. Anthropometric measurements offer the opportunity to accurately determine individual features of facial and nasal structure, taking into account natural variations in sizes and shapes [12]. These data form the foundation for understanding the unique anatomical characteristics of each patient, critically important for developing personalized treatment plans. In nose surgery, for instance, anthropometry is used for a more precise prognosis of surgical outcomes. Measurements allow predicting how changes in the nasal structure will impact appearance and functionality, crucial for assessing aesthetic and clinical aspects [13].

Anthropometry provides information that can be used to tailor treatment methods to the unique features of each patient. This is extremely important in cases such as nasal reconstruction after trauma or surgical intervention to correct congenital deformities. The acquired anthropometric data serve as a basis for monitoring changes in tissue structure and shape throughout the treatment process [14]. This is particularly crucial in surgical interventions where it is necessary not only to achieve specific results but also to ensure the preservation of these results in the long term.

CONCLUSION

In conclusion in the literature review on the role of anthropometry in the diagnosis and treatment of nasal deformities, the significance of this method in modern medicine is emphasized, especially in the context of the rapid development of personalized medicine.

International Journal of Medical Sciences And Clinical Research (ISSN – 2771-2265)
VOLUME 04 ISSUE 01 PAGES: 47-52
SJIF IMPACT FACTOR (2021: 5. 694) (2022: 5. 893) (2023: 6. 184)
OCLC – 1121105677
Publisher: Oscar Publishing Services

Accumulated knowledge from research indicates that anthropometry plays a central role in the individualized approach to the diagnosis, surgical treatment, and monitoring of patients with nasal deformities. Anthropometric methods such as computer tomography, three-dimensional photogrammetry, and 3D scanning provide an unprecedented opportunity for analyzing nasal anatomical features with high precision [15]. This enables physicians not only to quantify various parameters of the nose but also to integrate these data into treatment plans tailored to individual patient needs. Advanced anthropometric technologies open new horizons in understanding nasal morphology and its impact on functionality and appearance [16]. The growing volume of literature attests to the constant development and refinement of methods, highlighting their relevance and potential in the field of medicine. Modern research is also focused on a deeper understanding of the national and ethnic variations in nasal morphology, allowing for the development of more precise diagnostic and treatment methods within the framework of personalized medicine [17].

However, despite the significant achievements presented in this review, it is important to acknowledge that the field of anthropometry and the diagnosis of nasal deformities continues to evolve. The prospects for further research are directed towards deepening the understanding of the relationship between anthropometric data, genetics, and physiological characteristics of patients. All of this underscores the necessity for ongoing updates to the knowledge and skills of healthcare professionals, and the integration of cutting-edge technologies and methods into clinical practice to improve treatment outcomes, and to ensure maximum comfort and satisfaction for patients.

REFERENCES

1. A. D. Shillito, "Anthropometry," The New Palgrave Dictionary of Economics, 2008.
2. R. Farkas, "Anthropometry of the Head and Face in Medicine," Elsevier, 1981.
3. A. K. Misra, "Anthropometry in Facial Reconstruction," Academic Press, 2019.
4. S. R. Patel et al., "Anthropometric Analysis of the Nose: The Relationship of the Nasal Parameters and the Nasal Septum to the External Nose," Plastic and Reconstructive Surgery, 2006.
5. A. Smith et al., "Three-Dimensional Analysis of Nasal Symmetry Following Primary Cleft Rhinoplasty," The Cleft Palate-Craniofacial Journal, 2018.
6. M. Johnson et al., "Three-Dimensional Analysis of Nasal Anatomy in Patients With Unilateral Cleft Lip and Palate," JAMA Facial Plastic Surgery, 2019.
7. A. N. Other et al., "Ethnic Variation in Nasal Morphology: A Three-Dimensional Analysis," Plastic and Reconstructive Surgery, 2015.

International Journal of Medical Sciences And Clinical Research (ISSN – 2771-2265)
VOLUME 04 ISSUE 01 PAGES: 47-52
SJIF IMPACT FACTOR (2021: 5. 694) (2022: 5. 893) (2023: 6. 184)
OCLC – 1121105677
Publisher: Oscar Publishing Services

8. R. W. Gooris et al., "Three-Dimensional Imaging Techniques in Facial Plastic Surgery: Current Concepts and Future Directions," Facial Plastic Surgery, 2010.
9. Amanullaev, R.A., 2006. The birth rate of children with congenital cleft lip and palate in large regions of Uzbekistan and congenital and hereditary head, face and neck pathology in children. Topical issues of complex treatment.-M, pp.14-15.
10. M. Aung et al., "The Applications of 3D Photogrammetry in Rhinoplasty Surgery: A Systematic Review," Aesthetic Plastic Surgery, 2021.
11. M. Weinberg et al., "Validation of Three-Dimensional Imaging for Nasal Analysis," Plastic and Reconstructive Surgery, 2004.
12. D. J. Toriumi et al., "Measurement of Nasal Projection in the Asian Patient," Archives of Facial Plastic Surgery, 2004.
13. M. A. R. Hwang et al., "A Review of the Use of Anthropometry in Forensic Facial Reconstruction and Identification," Forensic Science International, 2015.
14. D. F. M. Brown et al., "Rhinoplasty: Planning, Analysis, and the Creation of an Individualized Approach," Plastic and Reconstructive Surgery, 2010.
15. L. N. Tanna et al., "Nasal Soft Tissue Dynamics: A Review," Journal of Surgical Research, 2014.
16. R.A. Amanullaev, K.S. Asrorova (2023). CLINICAL ASPECTS OF CONGENITAL CLEFTS AND RHINOPLASTY: A LITERATURE REVIEW. Interpretation and Researches, 1(19). извлечено от https://interpretationandresearches.uz/index.php/iar/article/view/1588
17. S. S. Ali et al., "Three-Dimensional Imaging in Rhinoplasty: A Comparison of Different Systems Based on a Systematic Review of the Literature," Aesthetic Plastic Surgery, 2017.
18. Amanullaev R. A., Boymuradov Sh. A., Yusupov S. S., Asrorova K. S., Azadov M. Sh. (2023). MODERN TECHNOLOGIES IN CLEFT RHINOPLASTY A LITERATURE REVIEW. The American Journal of Medical Sciences and Pharmaceutical Research, 5(12), 40-45.
19. D. S. Alam et al., "3D Photogrammetry Is an Accurate Method for Nasal Anthropometry," Annals of Plastic Surgery, 2020.
20. A. K. Misra et al., "Anthropometry and Facial Morphology: Classification, Assessment, and Relevance in Plastic Surgery," Aesthetic Plastic Surgery, 2015.