Original Article

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A Tertiary Care Hospital Dentate Patients Right Ring Finger Length and Vertical Dimension of Occlusion Have an Anthropometric Correlation

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ABSTRACT

OBJECTIVE: To determine if there is an anthropometric relationship between dentate patients' right ring finger (RRFL) length and vertical dimensions of occlusion (VDO) when they attend a tertiary care institution to have their root canal-treated teeth crowned.

STUDY DESIGN: A cross-sectional study

Duration and place of study: BKMC Mardan, KPK, from August 2019 to Feb 2020

METHODOLOGY: A cross-sectional study was done. The study was done at the outpatient prosthodontics department at BKMC in Mardan, KPK, from August 2019 to February 2020. Each participant sat on a dental chair with their heads raised while a computerized Vernier scale recorded their VDO. Second, the finger was RRFL recorded from tip to palmar digital crease farthest point. The data collection form includes age, gender, residence, and purpose of visit to assess whether the measured lengths—the VDO and the RRFL—are related.

RESULTS: There was a significant relationship (r=0.4057) between age and VDO and RRFL in the 18–25 age bracket (p = 0.000336). The age group from 26 to 30 has a p-value of 0.028398 and an R-value of 0.2549. The gender-related correlation between VDO and RRFL in the male group was r = 0.3465, with a p-value of 0.002493. The female group had a p-value of 0.01717 and a correlation coefficient of 0.2763.

CONCLUSION: RRFL and VDO have a favorable association, suggesting that it might help determine VDO. For accurate VDO selection, using this reference point in conjunction with further measurements is advised.

KEYWORDS: Prosthodontics, Vertical Dimension of Occlusion, and Right Ring Finger Length

INTRODUCTION

One definition of "edentulism" is the lack of natural teeth. Potential complications include difficulties with biting, speaking, chewing, losing one's attractiveness, and bad psychological effects [1,2,3]. The loss of vertical dimensions of occlusion (VDO), the separation between the two chosen anatomic locations (often the tip of the nose and the chin), is one of the main effects of edentulism [4,5,6,7]. If the edentulous patients' prosthodontic therapy is to maximize functionality and aesthetics, precise measurement and restoration of the VDO is crucial [8,9]. The denture treatment may fail if the VDO is accurately documented succeed. Prosthodontists have always struggled to determine how to evaluate the VDO during whole denture treatment [11]. The VDO may be measured using techniques such as pre-extraction recordings, cephalometry [13], and interocclusal rest positions [15,12]. Numerous additional methods, including phonetics [17], aesthetics, and the swallowing technique [16] [18]. Anthropometric measurements, such as nose and eye length,

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interpupillary distance, hairline to eyebrow line, and eye rims oris distance, have been employed by McGee [19] and several other writers [20 – 22]

METHODS

The descriptive cross-sectional study was conducted at Mardan's BKMC from August 26, 2019, to February 25, 2020. Using non-probability, sequential sampling, a sample size of 74 was chosen. Approval from the institutional ethics committee was requested. The research includes the subjects who met the inclusion criteria. They were told of the study's goals, methods, risks, and advantages, and their informed permission was acquired.

Inclusion criteria

1 Patients between 18 and 30 come in to get their root canal-treated teeth crowned.

2. Relationship between Angle Class I.

3. Individuals with a distinct occlusal stop in a centric configuration.

4. Individuals have a mouth full of at least 28 teeth.

5. Participants in the research comprised people of both genders.

Exclusion criteria

1. Individuals who had received orthodontic care.

2. Individuals undergoing jaw surgery or fractures.

3. Individuals with dental wear, abnormalities such as oligodontia, or any variation in tooth size.

4. Patients who are absent or have RRFL.

DATA ANALYSIS

Microsoft Windows 8.1's SPSS version 20 software was used to examine the data. Quantitative factors, including age, VDO, and RRFL, were computed to determine their average age and deviation. Gender and other qualitative factors were computed as percentages and frequencies. The association between the VDO and RRFL was examined using Pearson's correlation test. Using stratification, effect modifiers such as gender and age were considered. Effect modifiers allowed for the stratification of Pearson's "r ."The "p-value" after stratification was determined, and a value of "$p \leq 0.05$" was deemed significant.

RESULTS

In the 18–25 age range, the research discovered a substantial correlation between age and VDO and RRFL. Additionally, a link between RRFL and VDO was gender-related, with males having longer fingers and higher VDO levels than women.

Table 1: Age Distribution

Age Group	Frequency	Percentage
18-25 Years	35	44.87 %
26-30 Years	39	52.70 %
Total	74	100 %

Table 2: Gender Distribution

Gender	Frequency	Percentage
Male	42	56.75 %
Female	32	43.25 %
Total	74	100 %

Table 3: Descriptive Statistics

Numerical Variables	Mean	SDs
Age	24	3.28
VDO	52	2.96
RRFL	53	3.53

Overall results for VDO and RRFL:

r = 0.2962 p
Value= 0.010395

Table 5: Correlation of VDO and RRFL with Respect to Gender

Gender Groups	Mean & SDs		P Value	Pearson Correlation Coefficient
	VDO	RRFL		
Male	52+3.84	53+3.62	0.002493	r = 0.3465
Female	52+0.94	53+3.46	0.01717	r = 0.2763

Table 4: Correlation of VDO and RRFL with respect to age

Age Groups	Mean & SDs		P Value	Pearson Correlation Coefficient
	VDO	RRFL		
1 8 - 2 5 Years	52+0.75	52+2.73	0.000336	r = 0.4057
2 6 - 3 0 Years	53+3.94	54+3.86	0 .028398	r = 0.2549

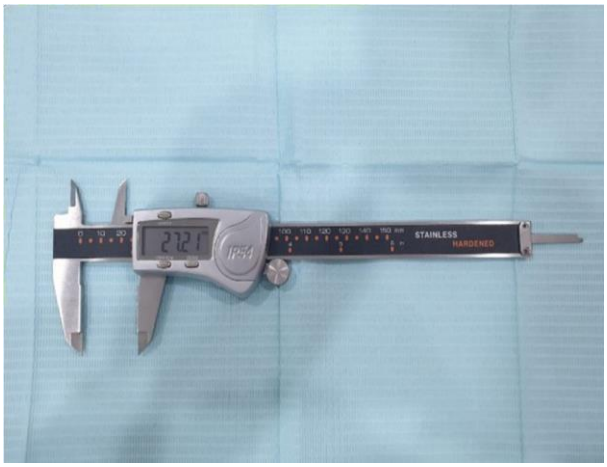

Figure 2: Measurement of VDO

DISCUSSION

This research paper's discussion section emphasizes the importance of the study's results and contextualizes them about prosthodontics and the difficulties in establishing the vertical dimension of occlusion (VDO)[23]. The right ring finger length (RRFL) of dentate patients and VDO are the main subjects of this research. It highlights how crucial it is to measure VDO precisely in prosthodontics to guarantee good treatment results, as an inaccurate VDO might cause problems with patient comfort, appearance, and general functioning [24]. The paper presents the innovative concept of using RRFL as a reference point for deter-

Figure 1: Digital Vernier Calliper mining VDO. It talks about the benefits of this method, such as how easy it is to use, how affordable it is, and how impartial it is compared to other approaches[25]. Given the positive correlation between RRFL and VDO shown in the research, prosthodontists may find RRFL assessment useful in helping patients choose the right VDO. The topic of gender dimorphism is also touched upon, with a note that males typically have longer fingers and higher VDO levels than women[26]. This discovery deepens the investigation of RRFL as a possible VDO selection indicator in the research[27]. The study's discussion concludes by highlighting the applicability and possible advantages of RRFL as a measuring reference in prosthodontics. It promotes more studies to hone and confirm this technique, which will eventually increase the accuracy of VDO diagnosis and raise the standard of patient dental care[28].

CONCLUSION

The measurement of the right ring finger is roughly similar to the vertical dimension of occlusion (VDO); nevertheless, to get the final VDO, the authors recommend combining this approach with other observations

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Figure 2: Measurement of RRFL

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