Knowledge and Awareness Regarding Dermatoglyphics among Undergraduate Dental Students in Territory Care Teaching Hospital

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ABSTRACT

Dermatoglyphics, the study of dermal ridge patterns, has been increasingly recognized for its diagnostic potential in various medical and dental conditions. This study aims to assess the knowledge and awareness of dermatoglyphics among first-year dental students. A structured online questionnaire was distributed, and the responses were statistically analyzed. The results indicate that while most students had heard of dermatoglyphics, a significant gap remains in understanding its applications in dentistry. Enhanced education and awareness programs are recommended to bridge this knowledge gap and improve its clinical utilization.

Aim: To assess the knowledge and awareness about dermatoglyphics among dental students.

Objectives

To assess the knowledge and awareness about dermatoglyphics among undergraduate dental students based on gender.

To assess the knowledge and awareness about dermatoglyphics among undergraduate dental students based on year of study.

Method: A cross-sectional survey was conducted among 201 dental students, comprising 64 males (31.8%) and 137 females (68.2%), including 9 first-year BDS students, 33 second-year BDS students, 33 third-year BDS students, 52 fourth-year BDS students and 74 interns. The survey included 13 questions exploring awareness, perceptions, and dermatoglyphics. Responses were analyzed based on gender and year of study using chi-square tests to identify statistically significant differences.

Keywords: Dermatoglyphics, Dental Diagnosis, Fingerprint Analysis, Oral Diseases, Student Awareness.

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Introduction

Dermatoglyphics, derived from the Greek words “derma” (skin) and “glyphics” (carving), is the scientific study of fingerprint patterns. These patterns form early in fetal development and remain unchanged throughout life. Dermatoglyphic markers have been linked to genetic conditions, including various dental disorders such as malocclusion, dental caries, and oral cancer. However, despite its potential, awareness, and application of dermatoglyphics in dentistry remain limited among budding dental professionals.

This study evaluates the knowledge and perception of dermatoglyphics among dental students and underscores the importance of integrating this discipline into dental education.

Methodology

A) Study Design and area: A cross-sectional study was carried out at the tertiary care teaching hospital Khammam.

B) Study population: The health care students, including those of I, II, III IV years and Interns who responded to the offline paper print questionnaire survey.

C) Study Instrument: A self-administered questionnaire was designed based on knowledge and awareness regarding Dermatoglyphics had total 13 questions. Each participant has to fill in their demographic data like Name, age, and year of study.

Participants had to select one option from the answers provided against questions the questions were based on knowledge, attitude, and awareness among dental students.

D) Pilot study: A pilot study was conducted on a group of students to assess the validity and reliability of the study.

E) Sampling method: The sampling method used is a convenience method

F) Inclusion criteria: The students who were interested in the study and who are willing to participate

G) Exclusion criteria: students who are not willing to participate are excluded

H) Organizing the study: The study was designed in a paper-based version of the self-administered questionnaire of 13 questions focusing on knowledge, and awareness. Includes the sections of demographic data: Name, Age, Sex and Year of study demographic information and asked to answer all questions by selecting one option from the provided answers.

I) Statistical analysis: Data from the filled questionnaire was conducted in a tabular form in an Excel worksheet and evaluated for analysis. The analysis was performed by SSPS version 29.

Result

A total of 201 students took part with a female of 68.2% and male of 31.8%. The age of participants ranges from 19-25. In this study, females have more knowledge than males. Interns have more knowledge than IV year students followed by III and II year students followed by I year students.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Age	201	19	34	22.58	1.306

Gender		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	64	31.8	31.8	31.8
	Female	137	68.2	68.2	100.0
	Total	201	100.0	100.0	

Year of study		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I BDS	9	4.5	4.5	4.5
	II BDS	33	16.4	16.4	20.9
	ÌII BDS	33	16.4	16.4	37.3
	IV BDS	52	25.9	25.9	63.2
	INTERNS	74	36.8	36.8	100.0
	Total	201	100.0	100.0	

Distribution and comparison of responses based on gender

Item	Response	Males		Females		Chi-Square value	P value
		n	%	n	%		
Q1	1	4	33.3	8	66.7	3.173	0.366
	2	2	22.2	7	77.8		
	3	10	22.2	35	77.8		
	4	48	35.6	87	64.4		
Q2	1	4	21.1	15	78.9	12.485	0.006
	2	5	41.7	7	58.3		
	3	26	23.6	84	76.4		
	4	29	48.3	31	51.7		
Q3	1	8	38.1	13	61.9	5.219	0.156
	2	10	31.2	22	68.8		
	3	19	44.2	24	55.8		
	4	27	25.7	78	74.3		
Q4	1	18	24.7	55	75.3	4.230	0.238
	2	18	42.9	24	57.1		
	3	18	34	35	66		
	4	10	30.3	23	69.7		
Q5	1	8	20.5	31	79.5	14.237	**0.003***
	2	10	35.7	18	64.3		
	3	17	60.7	11	39.3		
	4	29	27.4	77	72.6		
Q6	1	50	26.2	113	73.8	3.231	0.357
	2	14	36.8	24	63.2		
Q7	1	44	20.5	124	79.5	7.713	**0.05***
	2	20	51.9	13	48.1		
Q8	1	56	25	123	75	3.201	0.362
	2	8	44	14	56		
Q9	1	11	30.6	25	69.4	2.874	0.411
	2	12	30.8	27	69.2		
	3	12	46.2	14	53.8		
	4	29	29	71	71		
Q10	1	17	28.3	43	71.7	1.515	0.679
	2	11	31.4	24	68.6		
	3	16	29.6	38	70.4		
	4	20	38.5	32	61.5		
Q11	1	21	53.8	18	46.2	12.665	**0.005***
	2	8	33.3	16	66.7		
	3	24	22.9	81	77.1		
	4	11	33.3	22	66.7		
Q12	1	22	53.7	19	46.3	18.048	**0.001***
	2	14	41.2	20	58.8		
	3	19	19	81	81		
	4	9	34.6	17	65.4		

Q13	1	24	52.2	22	47.8	13.654	**0.003***
	2	7	33.3	14	66.7		
	3	23	21.9	82	78.1		
	4	10	34.5	19	65.5		

P≤0.05 is statistically significant

Distribution and comparison of responses based on year of the study

Item	Response	I BDS		II BDS		III BDS		IV BDS		INTERN		Chi-Value	P-Value
		n	%	n	%	n	%	n	%	n	%		
Q1	1	3	25	3	25	2	16.7	2	16.7	2	16.7	26.673	0.009
	2	0	0	2	22.2	2	22.2	1	44.4	4	44.4		
	3	0	0	4	8.9	3	6.7	14	53.3	24	53.3		
	4	6	4.4	24	17.8	26	19.3	35	32.6	44	32.6		
Q2	1	3	15.8	5	26.3	1	5.3	1	5.3	9	47.4	24.096	**0.02***
	2	0	0	3	25	1	8.3	4	33.3	4	33.3		
	3	3	2.7	17	15.5	14	12.7	30	27.3	46	41.8		
	4	3	5	8	13.3	17	28.3	17	28.3	15	25		
Q3	1	2	9.5	7	33.3	3	14.3	4	19	5	23.8	9.727	0.640
	2	1	3.1	7	21.9	4	12.5	9	28.1	11	34.4		
	3	2	4.7	7	16.3	7	16.3	10	23.3	17	39.5		
	4	4	3.8	12	11.4	19	18.1	29	27.6	41	39		
Q4	1	4	5.5	11	15.1	10	13.7	18	24.7	30	41.1	5.351	0.945
	2	2	4.8	10	23.8	7	16.7	10	23.8	13	31		
	3	2	3.8	7	13.2	8	15.1	15	28.3	21	39.6		
	4	1	3	5	15.2	8	24.2	9	27.3	74	30.3		
Q5	1	3	7.7	4	10.3	7	17.9	8	20.5	17	43.6	14.106	0.294
	2	0	0	7	25	6	21.4	10	35.7	5	17.9		
	3	1	3.6	5	17.9	7	25	8	28.6	7	25		
	4	5	4.7	17	16	13	12.3	26	24.5	45	42.5		
Q6	1	7	2.4	25	16.7	26	21.4	44	28.6	61	31	7.743	0.805
	2	2	5.3	8	21.1	7	18.4	8	21.1	13	34.2		
Q7	1	6	2.6	30	17.9	29	17.9	45	30.8	62	30.8	9.985	0.617
	2	3	7.4	3	11.1	4	11.1	7	25.9	12	44.4		
Q8	1	5	6.2	27	12.5	31	17.2	48	23.4	61	40.6	15.342	0.223
	2	4	10	6	14	2	8	4	16	13	52		
Q9	1	1	2.8	7	19.4	7	19.4	12	33.3	9	25	7.847	0.797
	2	2	5.1	6	15.4	7	17.9	6	15.4	18	46.2		
	3	2	7.7	3	11.5	4	15.4	9	34.6	8	30.8		
	4	4	4	17	17	15	34.6	25	25	39	39		
Q10	1	2	3.3	11	18.3	11	18.3	14	23.3	22	36.7	7.788	0.801
	2	1	2.9	8	22.9	4	11.4	9	25.7	13	37.1		
	3	3	5.6	10	18.5	8	14.8	17	31.5	16	29.6		
	4	3	5.8	4	7.7	10	19.2	12	23.1	23	44.2		
Q11	1	2	5.1	6	15.4	7	17.9	11	28.2	13	33.3	2.828	0.997
	2	1	4.2	6	25	4	16.7	5	20.8	8	33.3		
	3	4	3.8	15	14.3	17	16.2	27	25.7	42	40		
	4	2	6.1	6	18.2	5	15.2	9	27.3	11	33.3		
Q12	1	2	4.9	9	22	10	24.4	9	22	11	26.8	15.577	0.211
	2	1	2.9	4	11.8	3	8.8	12	35.3	14	41.2		

	3	5	5	17	17		11	11	26	26	41	41		
	4	1	3.8	3	11.5		9	34.6	5	19.2	8	30.8		
Q13	1	2	4.3	7	15.2		9	19.6	12	26.1	16	34.8	9.977	0.618
	2	1	4.8	3	14.3		6	28.6	7	33.3	4	19		
	3	5	4.8	16	15.2		12	11.4	29	27.6	43	41		
	4	1	3.4	7	24.1		6	20.7	4	13.8	11	37.9		

P≤0.05 is statistically significant

Discussion

The findings highlight a significant knowledge gap in dermatoglyphics among dental students. Despite recognizing its diagnostic potential, students lacked in-depth understanding of its clinical applications. Given its proven correlation with oral diseases, dermatoglyphics should be more prominently integrated into dental curricula.

Previous studies indicate that dermatoglyphic analysis can serve as a predictive model for orofacial disorders. However, a lack of awareness may limit its application in dental practice. Implementing targeted workshops and integrating dermatoglyphic studies into dental training programs could enhance its adoption in clinical settings.

Conclusion

The study concludes that while dental students are somewhat aware of dermatoglyphics, their understanding of its significance in dentistry is limited. Bridging this gap through education and research could enhance its utility as a diagnostic tool in dentistry.

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