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Knowledge Regarding Velscope among Under Graduate Dental Students in Khammam

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ABSTRACT

The Visually Enhanced Lesion Scope (VELscope) is an advanced diagnostic tool used for the early detection of oral mucosal abnormalities, including oral cancer and precancerous lesions. Utilizing fluorescence visualization technology, the VELscope enhances the detection of tissue changes that may not be visible under normal white light examination. This non-invasive, real-time screening device aids dental professionals in identifying suspicious lesions at an early stage, potentially improving patient outcomes through timely intervention. While VELscope is a valuable adjunct to traditional oral examinations, its limitations include the need for clinical expertise to interpret results and the possibility of false positives or negatives. Despite these challenges, VELscope has gained recognition as an effective aid in oral cancer screening, contributing to improved early diagnosis and prevention strategies in dental and medical practices.

Aim: The aim of this study is to evaluate the knowledge about velscope among undergraduate dental students in Khammam.

Objectives

1. Early Detection of Oral Abnormalities: Identify precancerous and cancerous lesions at an early stage.

2. Enhance Visual Examination: Use fluorescence technology to detect tissue changes not visible under white light.

3. Improve Diagnostic Accuracy: Assist dental professionals in identifying suspicious lesions more effectively.

4. Support Preventive Care: Enable early intervention to improve patient outcomes and reduce oral cancer mortality

Method: A cross-sectional survey was conducted among 245 dental students, comprising 84 males (34.3%) and 161 females (65.7%), including 72 third-year BDS students, 99 final-year BDS students, and 74 interns. The survey included 13 questions exploring Knowledge on velscope among dental students.

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Responses were analysed based on gender and year of study using chi-square test, P-value to identify statistical significant differences.

Keywords: Adjunctive Device, Dental Hygiene, Dentistry, Early Detection, Optical Device, Oral Mucosa.

Introduction

The Visually Enhanced Lesion Scope (VELscope) is an advanced diagnostic tool designed for the early detection of oral abnormalities, including oral cancer, precancerous lesions, and other mucosal changes. It uses fluorescence visualization technology to highlight tissue abnormalities that may not be visible under standard white light examination. This non-invasive, handheld device is widely used in dental and medical practices to improve early diagnosis and enhance patient outcomes.

By detecting changes in oral tissues at an early stage, VELscope aids in preventive care and timely intervention, potentially reducing oral cancer mortality rates. While it serves as an effective adjunct to traditional oral examinations, its interpretation requires clinical expertise, and it may sometimes produce false positives or negatives. Despite these limitations, VELscope has gained recognition as a valuable tool in oral cancer screening and general oral health assessment, contributing to improved diagnostic accuracy and patient care.

Methodology

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

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

C) Study Instrument: A self-administered questionnaire was designed based on knowledge attitude and awareness on hand hygiene practices had total 13 questions .Each participant has to fill their demographic data like Name, age, and year of study. Participant has to select one option from the answers provided against questions. The questions were based on knowledge attitude and practice among dental students.

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

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

F) Inclusion Criteria: The students who were interested in 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, attitude, practice.

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.

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 245 students took part in this with female (65.7%) and male of (34.3%). Age of the participants ranging from 19-25 years. In this study males were more likely to demonstrate awareness of hand hygiene than females. Significantly IIIBDS (29.4%), INTERS (30.2%), IV (40.4%).

Showed greater response on hand hygiene practices

	No of Responses	Minimum	Maximum	Mean	Std. Deviation
Age	245	2	26	22.13	1.638

Gender	Frequency	Percentage
Male	84	34.3%
Female	161	65.7%
Total	245	100.00%

Distribution and comparison of responses based on year of study

Item	Response	Males		Females		Chi-Square value	P value	Total	
		n	%	n	%			n	%
Q1	1	78	39.4	120	60.6	13.915	**0.003***	198	80.8
	2	4	23.5	13	76.5			17	6.9
	3	0	0	15	100			15	6.1
	4	2	13.3	13	86.7			15	6.1
Q2	1	49	39.6	78	61.4	8.445	**0.038***	127	51.8
	2	31	36.5	54	63.5			85	34.7
	3	3	13	20	87			23	9.4
	4	1	10	9	90			10	4.1
Q3	1	30	33	61	67	5.698	0.127	91	37.1
	2	50	39.1	78	60.9			128	52.2
	3	3	18.8	13	81.2			16	6.5
	4	1	10	9	90			10	4.1
Q4	1	25	27.8	65	72.2	12.493	0.006*	90	36.7
	2	53	44.2	67	55.8			120	49
	3	5	23.8	16	76.2			21	8.6
	4	1	7.1	13	92.9			14	5.7
Q5	1	21	30	49	70	10.422	0.015*	70	28.6
	2	55	42.6	74	57.4			129	52.7
	3	6	18.2	27	81.8			33	13.5

	4	2	15.4	11	84.6			13	5.3
Q6	1	24	29.6	57	70.4	9.978	0.019*	81	33.1
	2	56	41.8	78	58.2			134	54.7
	3	3	13.6	19	86.4			22	9
	4	1	12.5	7	87.5			8	3.3
Q7	1	27	38	44	62	6.714	0.082	71	29
	2	49	37.7	81	62.3			130	53.1
	3	7	21.2	26	78.8			33	13.5
	4	1	9.1	10	90.9			11	4.5
Q8	1	24	34.8	45	65.2	5.352	0.148	69	28.2
	2	56	37.6	93	62.4			149	60.8
	3	3	16.7	15	83.3			18	7.3
	4	1	11.1	8	88.9			9	3.7
Q9	1	22	31.9	47	68.1	7.245	0.064	69	28.2
	2	56	40	84	60			140	57.1
	3	5	17.9	23	82.1			28	11.4
	4	1	12.5	7	87.5			8	3.3
Q10	1	20	29.4	48	70.6	13.179	0.004*	68	27.8
	2	59	42.8	79	57.2			138	56.3
	3	4	14.3	24	85.7			28	11.4
	4	1	9.1	10	90.9			11	4.5
Q11	1	21	35	39	65	9.330	0.025*	60	24.5
	2	55	40.4	81	59.6			136	55.5
	3	7	16.7	35	83.3			42	17.1
	4	1	14.3	6	85.7			7	2.9
Q12	1	32	40.5	47	59.5	10.273	0.016*	79	32.2
	2	45	37.8	74	62.2			119	48.6
	3	6	17.6	28	82.4			34	13.9
	4	1	7.7	12	92.3			13	5.3
Q13	1	20	30.8	45	69.2	6.058	0.109	65	26.5

	2	58	39.2	90	60.8			148	60.4
	3	5	23.8	16	76.2			21	8.6
	4	1	9.1	10	90.9			11	4.5

Year of Study	Frequency	Percentage
III BDS	72	29.4%
IV BDS	99	40.4%
INTERNS	74	30.2%
TOTAL	245	100.00%

P≤0.05 is statistically significant

Discussion

The VELscope is a valuable tool for early detection of oral abnormalities, using fluorescence visualization technology to highlight tissue changes that may not be visible under white light. Its non-invasive and quick screening process aids in early diagnosis, improves clinical decision-making, and enhances patient awareness of oral health. However, VELscope is not a standalone diagnostic tool, as it may produce false positives or negatives, requiring further evaluation through biopsies. Additionally, clinical expertise is needed to interpret results accurately. Despite these limitations, VELscope remains a useful adjunct in oral cancer screening, improving early detection and patient outcomes.

Conclusion

The VELscope is an effective tool for early detection of oral abnormalities, aiding in the identification of precancerous and cancerous lesions through fluorescence visualization technology. Its non-invasive nature and ability to enhance traditional oral examinations make it a valuable adjunct in dental practice. However, as it does not provide a definitive diagnosis, further evaluation, including biopsies, is necessary for confirmation. Despite challenges such as false positives and the need for clinical expertise, VELscope plays a crucial role in oral cancer screening, contributing to improved early detection and patient outcomes.

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