

Knowledge and awareness about Bowen's disease among dental students

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ABSTRACT

The study aimed to assess the awareness and knowledge about Bowen's disease among dental students. Bowen disease is an infrequent skin disorder and is also referred to as squamous cell carcinoma *in situ*. It is a noninvasive form of intraepidermal squamous cell carcinoma with flat or slightly raised lesions. An online survey was conducted among 300 dental students between the age group of 18–30 years in the Chennai district based on Bowen's disease. This is the best approach to data collection due to the large population of the city of Chennai and is also appropriate in the current situation where people need to avoid gatherings and close contact. About 78.21% were BDS students and 21.79% were MDS students. In the age group of 10–20 years, 8.97% responded heard about Bowen disease and 3.85% responded not heard. Within the 21–30 years age group, 44.02% responded that Bowen disease is invasive and 20.09% responded noninvasive. Studies showed that the exact occurrence of Bowen's disease is not known. It is found to be more common in men than in women. To conclude, about 65% of participants were aware of Bowen's disease. Nevertheless, patients with Bowen's disease seem to be at an abnormal risk of internal malignancies, and they need to be educated about the various treatments available to prevent the cause as soon as possible.

Key words: Biopsy, Bowen disease, chemotherapy, innovative technology, novel method, sunlight

INTRODUCTION

Bowen's disease was first described in 1912 by Dr. JT Bowen and is a rare skin disease. This can also be referred

to as intraepithelial squamous cell carcinoma, which is an early noninvasive type of carcinoma of intraepidermal squamous cells with flat or slightly elevated lesions. Lesions are usually unrelated to symptoms, but may be accompanied by itching, pus (in case of infection), bleeding or crusting, and/or tenderness.^[1] Sometimes, the lesion may be wart (wart), ruptured (cracked), or rarely dark (colored). In most cases, there is only one lesion, but about 10%–20% of people can usually develop multiple lesions in multiple areas of the body. This disorder most commonly affects the lower extremities. Although less common, the head and neck, soles, genitals, and palms can get affected. Ulcers or indurations (hardening) of skin lesions also show the malignant transformation.^[2]

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Chronic exposure to the sun and aging are the major risk factors for developing this condition. It affects the epidermis of the skin. Fair-skinned people and those who are more exposed to the sun are at increased risk for Bowen's disease. Infection caused by human papillomavirus (HPV) on the skin is a key risk factor for Bowen's disease development.^[3] HPV is a class of exceeding 150 similar viruses, some can bring about cancer. HPV 18, 16, 48, and 34, can cause Bowen's disease at the genital site. HPV 16 is mostly involved in the occurrence of the disease. Based on certain previous studies, chronic exposure to arsenic can generate this disease about a decade after the first exposure. For years, it was found that arsenic can pollute well water and was once used in several medicines.^[4]

Bowen's disease is diagnosed by certain symptoms, an elaborate medical history, and detailed laboratory tests. This condition is easily confused with other skin conditions such as eczema and psoriasis and can be misunderstood as it is devoid of any related symptoms. Bowen's disease might have first been observed during regular skin tests. Confirmation of the disease is done by a biopsy of the tissue affected. Although Bowen disease has no specific definitive treatment, various treatments can be used with an excellent rate of success.^[5] The specific treatment relies on many factors, including affected body area; size, thickness, and the number of lesions; with or without specific symptoms; age and health status of the person; and/or other factors.^[6] Based on the case history and careful consultation, the specific medication and/or other decisions regarding the use of specific medications be selected for this disease. Detailed discussion regarding the possible benefits and risk factors including potential side effects and long-term effects is essential. Our research and knowledge have resulted in high-quality publications from our team.^[7-20] The main aim and rationale behind the study are to assess and increase knowledge and awareness about Bowen's disease among dental students.

MATERIALS AND METHODS

An online survey was conducted among 300 dental students between the age group of 18–30 years in the Chennai district based on Bowen's disease. The online survey included 15 questions based on genetic involvement, causes, diagnosis, and treatment. The inclusion criteria of this study include dental students and the ability to read and understand English. The exclusion criteria of this study include school students, other dental students' refusal, and not being able to read and write English. This study was conducted in January–February 2021. A signed consent form stating the willingness to participate in the survey was obtained from all the participants. The collected data were analyzed and tabulated. A Chi-square test was used, with $P < 0.05$ to be statistically significant. Descriptive analysis was carried out

using pie charts and bar graphs. The institutional review board has given information to conduct the study.

RESULTS

The data collected from the survey are statistically analyzed. The results were represented as pie diagram and bar graphs [Figures 1-10].

DISCUSSION

Bowen's disease is a slowly growing, persistent reddish-brown plaque or dry, scaly skin plaque. From the above study, approximately 72.22% (male) of dental students participated in the study [Figure 1], mainly in the age group of 21–30 (64.10%) [Figure 2] and BDS undergraduate courses (78.21%) [Figure 3]. Previous literature states that the actual cause behind the disease is not known. Caucasians are mostly diagnosed with Bowen's disease at more than 60 years of age, but can also be found in the younger population. It is assumed to be more common in men than in women. According to a study, when asked if they had heard of Bowen's disease, the majority (49.15%) of the 21–30-year-old group answered "yes" [Figure 4]. Bowen's disease, which turns out to be a precancerous condition of squamous cell carcinoma, is a rare disease but one of the major types of skin cancer.^[21] When asked if Bowen's disease was hereditary, 21–30 years old said they were hereditary (41.88%) [Figure 5]. Bowen's disease is a noninvasive precancerous condition, also known as intraepithelial squamous cell carcinoma, but our findings show that approximately 44.02% of the 21–30-year-old age group is an invasive form which was contraindicated [Figure 6]. The greatest risk factor was high overall exposure to UV radiation from the sun, which was agreed by approximately 48.29% of the 21–30-year-old group [Figure 7]. Before, the most common diagnosis of Bowen's disease was shown to be a biopsy of the affected

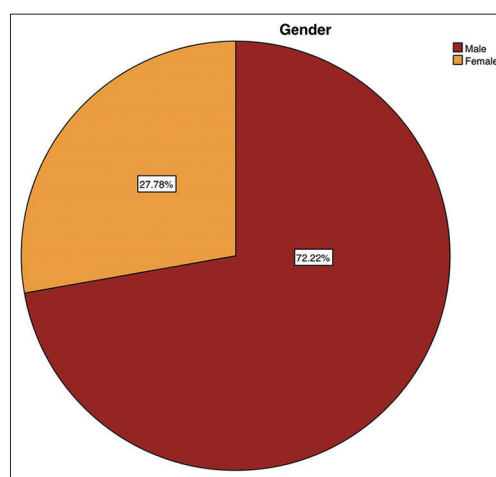


Figure 1: This shows the gender of the participants. About 72.22% of them were male (red) and 27.78% of them were female (yellow)

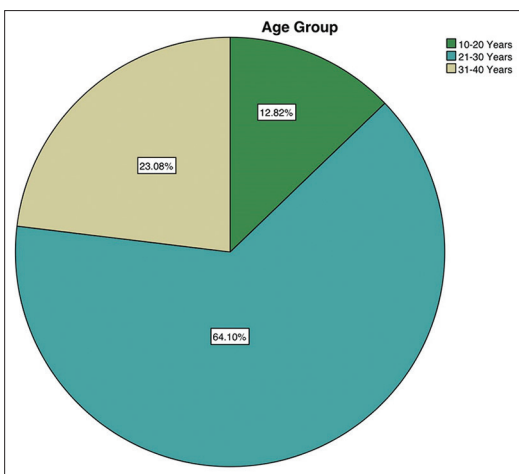


Figure 2: This shows the age group of the participants. About 64.10% of them belong to 21–30 years (blue), 23.08% belong to 31–40 years (yellow) and 12.82% belong to 10–20 years (green)

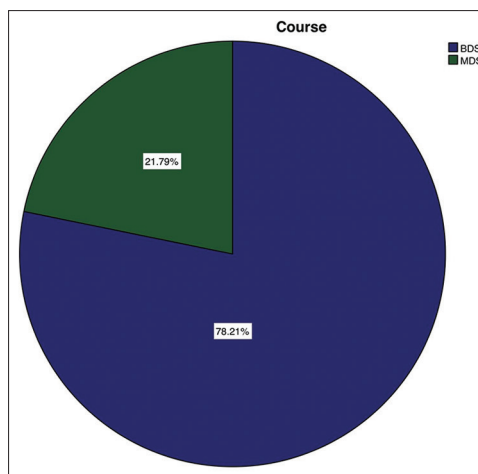


Figure 3: This shows the course of the dental students. About 78.21% were BDS students and 21.79% were MDS students.

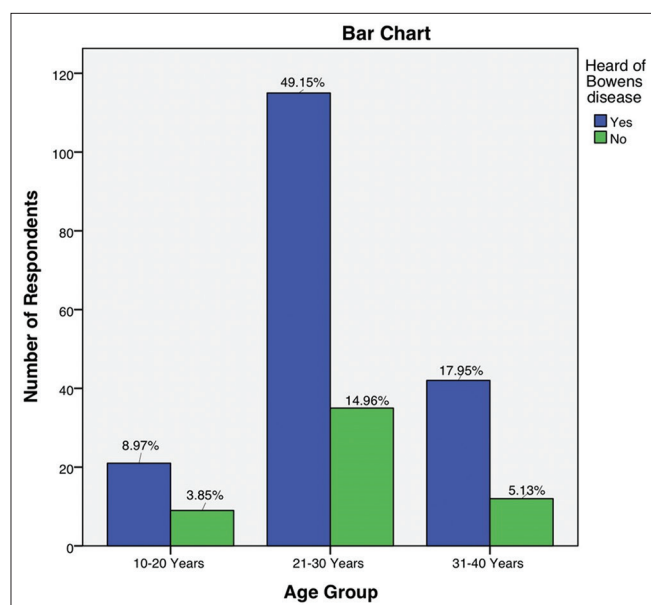


Figure 4: This shows the association of age groups with participants' awareness on Bowen's disease. Chi-square = 4.983 and $P = 0.17$ ($P < 0.05$). Hence, there is no significant difference between the age group and awareness of Bowen diseases

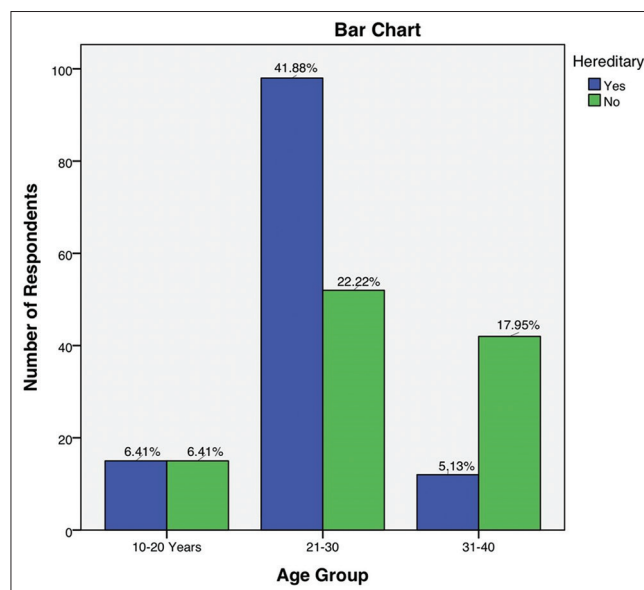


Figure 5: Represents the association of age group with knowledge on whether the disease is hereditary or not. Chi-square = 5.675 and $P = 0.32$ ($P < 0.05$). Hence, the association between the age group and knowledge of genetic involvement in Bowen's disease is not significant

tissue, but this finding was that 41.17% [Figure 8] responded to fine-needle aspiration cytology as a diagnosis. Diagnosis plays an important role in the identification and is used to distinguish Bowen's disease from other skin diseases.^[22] Other skin diseases that resemble with Bowen's disease include lichen planus, actinic keratosis, superficial basal cell carcinoma, tinea corporis, seborrheic keratosis, and extramammary Paget includes illness.^[23] In our study, about 32.19% [Figure 9] reported psoriasis as a differential diagnosis. Patients with Bowen's disease have a variety of treatments, including cryotherapy, photodynamic therapy, topical chemotherapy, curettage, and surgery. Most treatments show wonderful response rates and the prognosis

for Bowen's disease is almost always exceptional. Responses to specific treatments vary, and some works for one person may not work for others. The tailoring of a treatment plan for Bowen's disease is essential for individual cases.^[24]

Some people may not choose treatment (observe and wait). Follow-up means a physician who follows a patient with a slow-developing illness with no treatment until the development of the illness occurs. As a result, some people can do it for years without such treatment. It is necessary to observe and wait for older patients whose lesions are slowly growing in areas that may be inadequately healed (such as the lower leg). Cryotherapy can be also

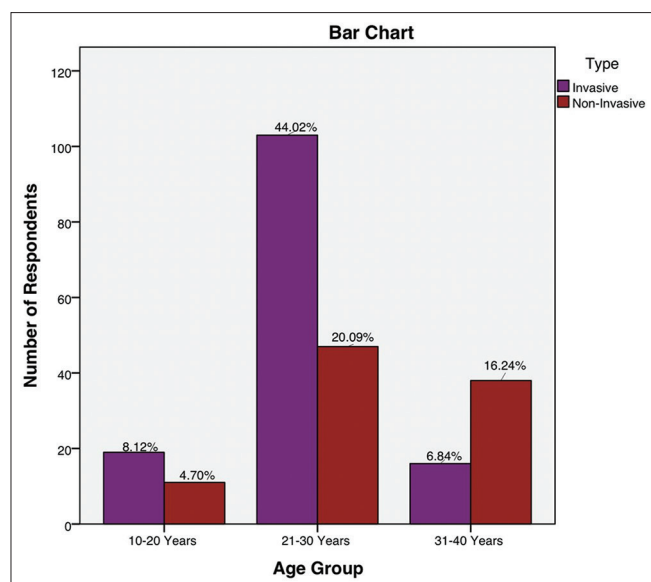


Figure 6: Represents the association of age group with the knowledge of the awareness of the type of disease. Chi-square = 5.675 and $P = 0.37$ ($P < 0.05$). Hence, the association of age group with awareness on the type of disease is not significant

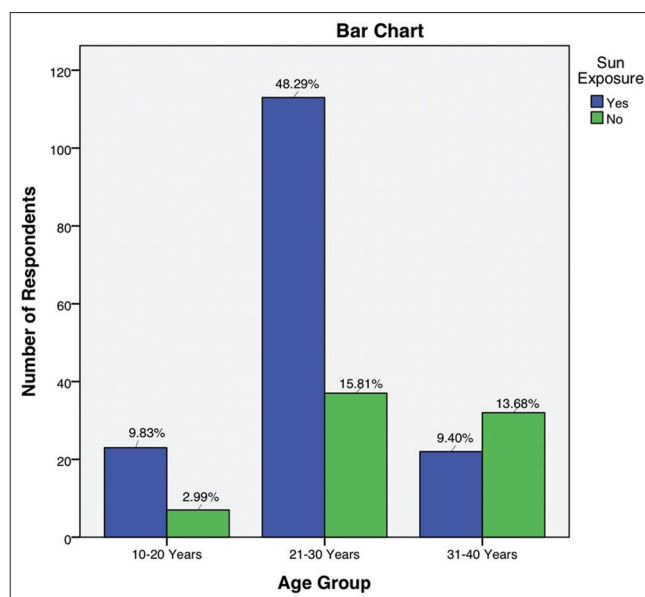


Figure 7: Represents the association of age group with awareness on the cause of disease. Chi-square value is 5.678 and $P = 0.34$ ($P < 0.05$). Hence, the association of age group with awareness on the cause of disease is not significant

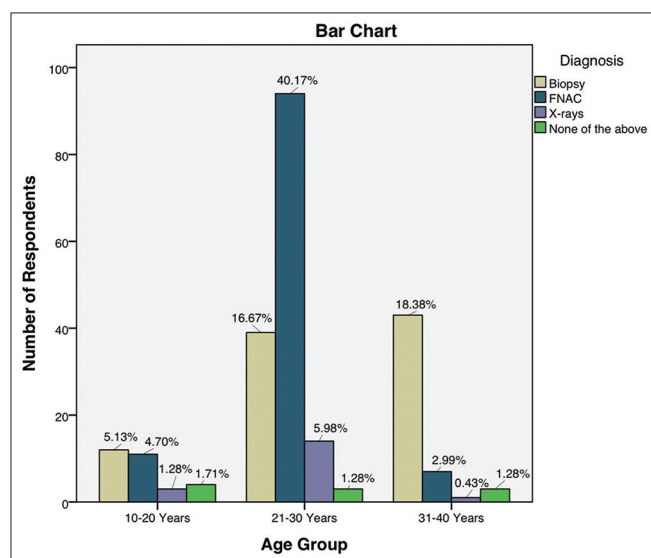


Figure 8: Represents the association of age group with the knowledge on the diagnosis of Bowen's disease. Chi-square value is 3.675 and $P = 0.23$ ($P < 0.05$). Hence, the association of age group with knowledge on the diagnosis of Bowen diseases is not significant

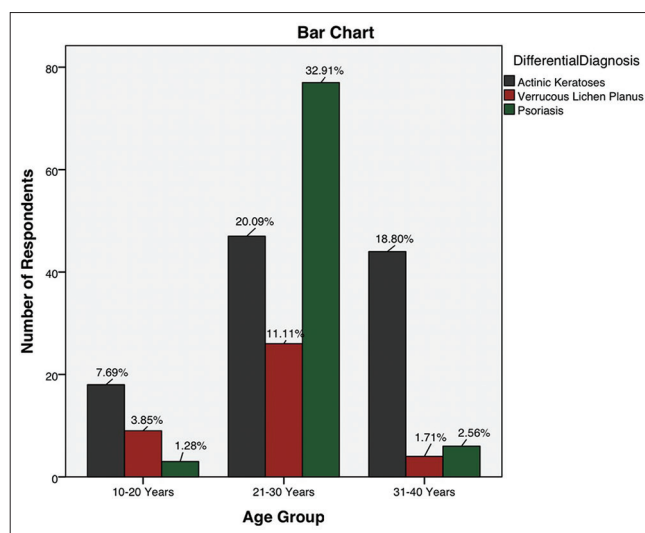


Figure 9: Represents the association of age group with differential diagnosis. Chi-square = 5.678 and $P = 0.34$ ($P < 0.05$). Hence, the association of age group with knowledge of differential diagnosis is not significant

employed for treating Bowen's disease. Cryotherapy uses extreme cold to freeze to kill the tissues and cells in skin lesions.^[25] This treatment option is minimally invasive. With topical chemotherapy, the cream is applied directly to the lesion. 5-fluorouracil and imiquimod 5% are the two most common topical medications employed for the treatment of this disease.^[26] Photodynamic therapy is used to treat Bowen's disease with large or multiple lesions by using a photosensitizer with a special type of red light. Historically, X-rays or radiotherapy have often been used as a treatment

option, mainly for those who are unsuitable for surgical procedures or those who have multiple lesions. Radiation therapy is not recommended for people with foot lesions due to inadequate healing of wounds in that area.^[27] Radiation therapy is now used less frequently to treat Bowen's disease than it used to be. In our study, most subjects responded to cryotherapy, photodynamic therapy, and chemotherapy as treatments (40.60%) [Figure 10]. Avoiding exposure to excessive sunlight is the most important step in decreasing the risk of Bowen's disease.^[28] Measures such as protective

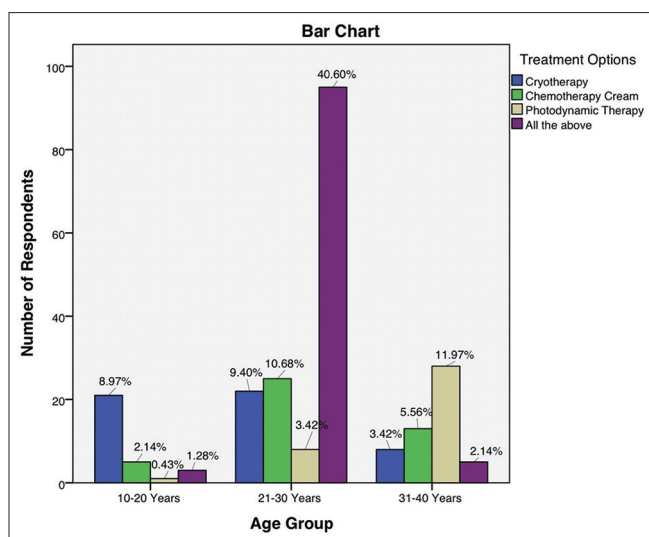


Figure 10: Represents the association of age group with awareness of treatment options for Bowen's disease. Chi-square = 3.675 and $P=0.23$ ($P < 0.05$). Hence, there is no significant difference between the age group and awareness of the treatment options for Bowen's disease

clothing, sunscreen, and avoidance of sunbeds can be employed to reduce the risk of the disease.

CONCLUSION

The study showed that 65% of the respondents were aware of Bowen's disease. However, patients with Bowen's disease have a higher risk for internal malignant neoplasms. Hence, as health-care professionals, we should educate patients with Bowen's disease about various treatment modalities available to prevent the cause at the earliest.

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Conflicts of interest

There are no conflicts of interest.

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