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Knowledge and awareness of ozone therapy among dental professionals

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ABSTRACT

Ozone is a form of oxygen made up of triatomic molecules, which is considered to be having a great positive effect on the field of medicine and dentistry. Ozone therapy involves mainly the use of ozone gas for the treatment. It is mainly used for the treatment of arthritis, or any viral diseases like HIV or SARS. It is also used as a disinfectant and it also helps in stimulating the immune response of the body and cancer therapy. It will help as sanitary techniques such as irrigation with antiseptic. The study aims to assess the knowledge and awareness of ozone therapy among dental practitioners. An online based questionnaire was distributed to all the participants. The participants were well informed about the online survey and it was answered with full potential. Then the results were collected and were analysed statistically. 60.4% of the study population were aware of the use of ozone therapy in dental applications, and 57.5% of the study population was aware that ozone prevents tooth decay. From the analysed data it was observed that the majority of the participants were aware about the usage of ozone therapy in dentistry.

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INTRODUCTION

Ozone therapy is one of the alternative medical treatments which helps to increase the amount of oxygen supply to the blood which even leads to better ability to focus and sustain attention. The introduction of ozone, studies show that the direct relation of ozone is toxic. There is some evidence for its effectiveness in specific medical applications. The food and drug administration, prohibited all medical uses of ozone which states that "in any medical condition for which there is no proof or safety and effectiveness."

Ozone therapy has been used in medicine for many years to treat a variety of ailments in the human body. The study of ozone tells us ozone is an unstable triatomic molecule, which is made up of three atoms of oxygen. The best use of ozone is that, its ability to kill bacteria fungi and parasites and even viruses. Ozone therapy is considered as a major treatment modality in Europe, South America, and a number of other countries around the world (Ilankizhai and Devi, 2016). The advancement in medicine as science has developed a lot and has helped in the incorporating knowledge and practising medicine with the help of ozone, which brings about high value for development and progress of humanity (David *et al.*,

2019; Harsha *et al.*, 2015). The development of small molecule therapeutics and biologic agents may improve asthma care in the future (Dave and Preetha, 2016). This survey evaluates the knowledge and awareness of ozone therapy among dental practitioners.

MATERIALS AND METHODS

A cross-sectional survey was conducted among dental practitioners with questionnaires on the knowledge and awareness of ozone therapy. In this online based survey, the questionnaires were distributed to dental practitioners. The study included 51 participants. The survey was created on an online survey planet, Google doc forms and was distributed among dental practitioners.

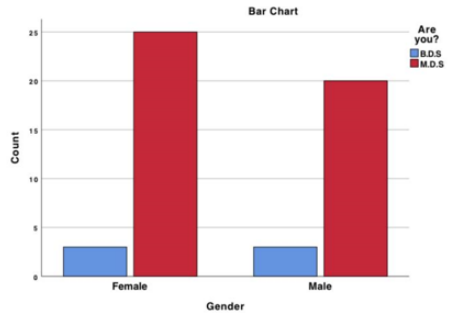

Figure 1: Bar-graph representing the distribution of the participants comprising general and specialty dentists

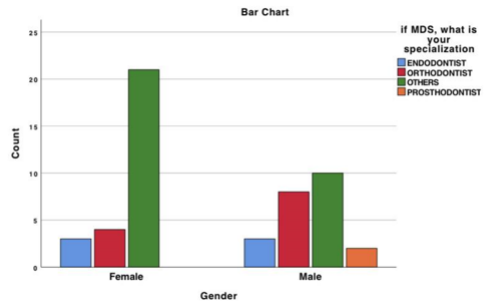

Figure 2: Bar-graph representing the distribution of speciality of participants comprising dental specialists

RESULTS AND DISCUSSION

The responses were collected from Google doc forms. In the present study, 45.1% were females, 54.9% of males Among the total population Figure 1, 11.8% were general dentists and 88.2% were dental specialists. The X-axis represents the gender of the participants and, Y-axis represents the number of students who are aware. Chi square value is -0.066,

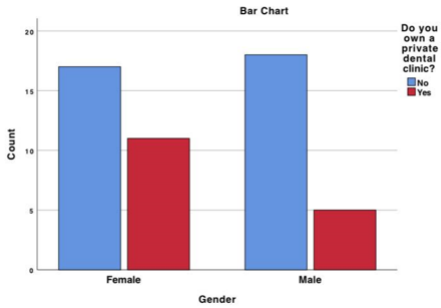

Figure 3: Bar-graph representing the distribution of participants who own a private clinic

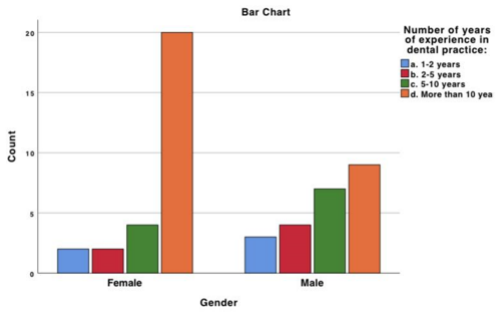

Figure 4: Bar-graph representing the distribution of the experience of dental practice

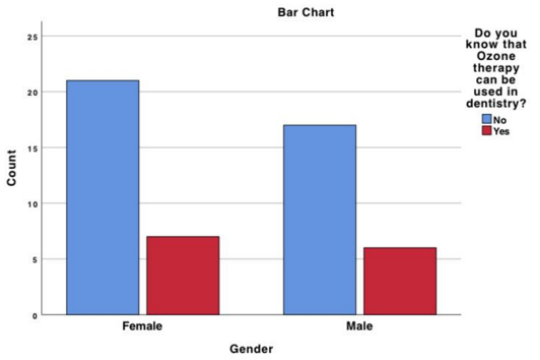

Figure 5: Bar-graph representing the awareness about ozone therapy

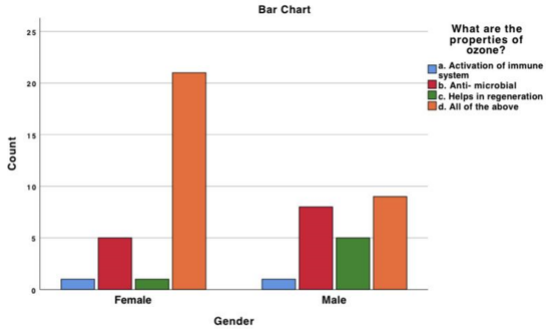

Figure 6: Bar-graph representing the awareness about the antimicrobial properties of ozone

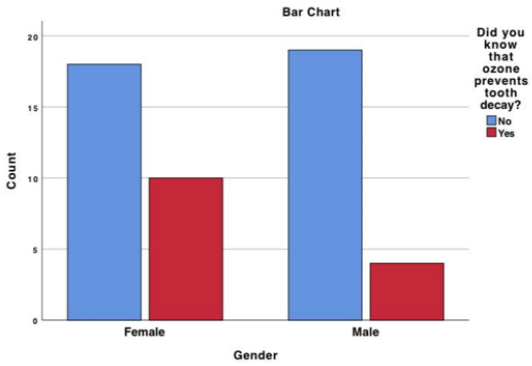

Figure 7: Bar-graph representing the awareness on prevention of tooth decay using ozone

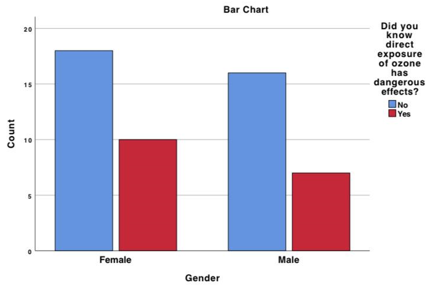

Figure 8: Bar-graph representing the awareness on the harmful effects of ozone

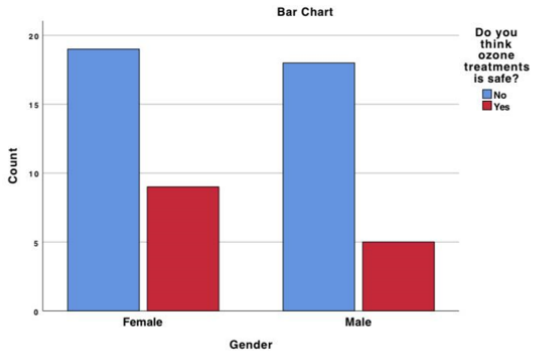

Figure 9: Bar-graph representing the awareness on the safety of using ozone treatment

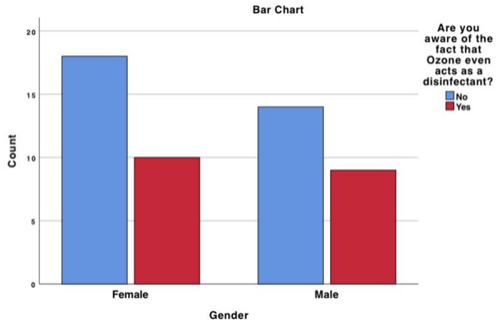

Figure 10: Bar-graph representing the awareness of ozone as a disinfectant

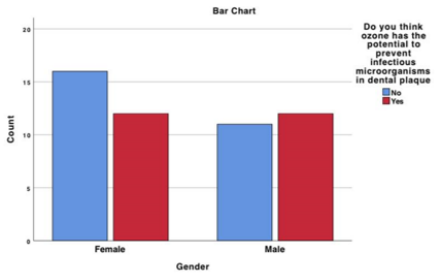

Figure 11: Bar-graph representing the awareness on the prevention of infectious microorganisms in dental plaque

p-value-0.797 which is statistically significant. 23.5 were orthodontists, 60.8% prosthodontists, X-axis represents the gender of the participants and, Y-axis represents the number of students who are aware. Chi square value is - 6.812, p-value- 0.078 (>0.05) significant. Participants gender was significant with their degree Figure 2, 68.6% do not own a private clinic and 31.4% own a private clinic. X-axis represents the gender of the participants and Y-axis represents the number of students who are aware. Chi square value is -1.806 , p-value- 0.179(>0.05) significant. Participants' gender was significant with their specialization Figure 3.

Among the total population, X-axis represents the gender of the participants and Y-axis represents the number of students who are aware. Chi square value is -5.419, p-value- 0.144(>0.05) significant. Participants gender was significant with their years of practice Figure 4. 9.8% of the population had 1 to 2 years of experience,11.8% had 2 to 5 years of experience, 21.6% had 5 to 10 years of experience and 56.9% had more than 10 years of experience (Choudhari and Jothipriya, 2016).

In the total population, X-axis represents the gender of the participants and Y-axis represents the number of students who are aware. Chi square value is -0.008 , p-value- 0.929.(>0.05) significant. Participants gender was significant with their knowledge on the use of ozone therapy Figure 5, 74.5% did not know that ozone can be used in dentistry and 25.5% were aware about the uses of ozone therapy (Abigail, 2019). X-axis represents the gender of the participants and Y-axis represents the number of students who are aware. Chi square value is -7.743, p-value- 0.052(>0.05) significant. Participants gender was significant with their knowledge on the properties of ozone Figure 6, 3.9% of the population had said that ozone helps in the activation of the immune system, 11.8% said it helps in regeneration, 25.5% said that it has antimicrobial properties and 58.8% had answered all of the above (Shruthi and Preetha, 2018). X-axis represents the gender

of the participants and Y-axis represents the number of students who are aware. Chi square value is -2.129, p-value- 0.145 (>0.05) significant. Participants gender was significant with their knowledge on ozone that prevents tooth decay Figure 7. 72.5% said that ozone couldn't prevent tooth decay and 27.5% said that ozone could prevent tooth decay. Previous studies have suggested that Ozone has an effect on obesity (Sethu and Devi, 2018). 54.57% were aware of the harmful effects of direct exposure to ozone. X-axis represents the gender of the participants and , Y-axis represents the number of students who are aware. Chi square value is -0.158 , p-value- 0.691(>0.05) significant. Participants gender was significant with their knowledge on the harmful effects on the direct exposure to ozone Figure 8. Bilirubin is a highly neurotoxic substance and ozone therapy and ozone can normalise bilirubin levels (Samuel and Devi, 2015). Poor sleep quality and insufficient sleep duration and sleep deprivation are internationally recognized in crucial health concerns (Renuka and Sethu, 2015). Shorter and longer sleep times are more likely to be in poorer overall health and to have been diagnosed with medical conditions. Ozone therapy can help in stimulating restful sleep (Timothy *et al.*, 2019). 45.3% are not aware of it. 60.4% of the population think that ozone treatment is safe and the minor of 39.6% do not think ozone therapy is safe. X-axis represents the gender of the participants and Y-axis represents the number of students who are aware. Chi square value is -0.686, p-value-0.407 (>0.05) significant. Participants' gender was significant with their knowledge that ozone treatment is safe Figure 9 , (Iyer *et al.*, 2019). 60.4% of the population were aware of the use of Ozone as a disinfectant and 39.6% do not X-axis represents the gender of the participants and Y-axis represents the number of students who are aware. Chi square value is -0.063, p-value- 0.802(>0.05) significant. Participants gender was significant with their knowledge on ozone used as a disinfectant Figure 10. 47.1% said that ozone has the potential to prevent infections microorganisms in dental plaque and 52.9% do not (Swathy and Sethu, 2015). X-axis represents the gender of the participants and Y-axis represents the number of students who are aware. Chi square value is -0.440 , p-value-0.507 (>0.05) significant. Participants' gender was significant with their knowledge on the potential of ozone in preventing infectious microorganisms in dental plaque Figure 11.

The present study shows that the majority of dental practitioners are well aware of the uses of ozone therapy in dentistry. This may be helpful for those suffering from respiratory problems by supplying surplus oxygen to the lungs. Ozone therapy improves the health and quality of life (Samuel and Devi, 2015). Some dental practitioners are quite unaware of the effects of Ozone therapy. More knowledge and implementation of ozone therapy help them in better quality and more efficient method of treatment.

Ozone is also a toxic gas with no proof of safety and effectiveness (Lima *et al.*, 2015). Ozone was the first used in healthcare settings to disinfect operating rooms and sterile surgical instruments (Uraz *et al.*, 2019). More recent reviews have highlighted the different roles of administration. It may result in different therapeutic and side-effects (Bocci *et al.*, 2011). Ozone has been suggested for the use in dentistry with preliminary evidence supporting its use (Domb, 2014). It has been argued that peroxides that are generated in cells are used to kill bacteria (Wyatt, 2015).

CONCLUSION

Ozone therapy can serve as an alternative to conventional antibiotics and disinfectants. This study highlights the knowledge and awareness of ozone therapy among dental practitioners. It has shown that dental practitioners were well aware of the potential use and harmful effects of ozone therapy and its wide array of applications in dentistry.

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Conflict of Interest

The authors declare that they have no conflict of interest for this study.

REFERENCES

Abigail 2019. Evaluation of Muscular Endurance among Dentists. *Indian Journal of Public Health Research & Development*, 10(10):258–261.

Bocci, V., Zanardi, I., Travagli, V. 2011. Ozone: A New Therapeutic Agent in Vascular Diseases. *American Journal Cardiovascular Drugs*, 11(2):73–82.

Choudhari, S., Jothipriya, A. 2016. Non-alcoholic fatty liver disease. *Research Journal of Pharmacy and Technology*, 9(10):1782–1782.

Dave, P. H., Preetha 2016. Pathogenesis and Novel Drug for Treatment of Asthma-A Review. *Research Journal of Pharmacy and Technology*, 9(9):1519–1519.

David, Priya, A. J., Devi, G. 2019. Physical Fit-

ness among the Dental Physician, Dental Undergraduates and Postgraduates Students. *Indian Journal of Public Health Research & Development*, 10(10):223–223.

Domb, W. C. 2014. Ozone Therapy in Dentistry. *Interventional Neuroradiology*, 20(5):632–636.

Harsha, L., Priya, J., Shah, K. K., Reshmi, B. 2015. Systemic Approach to Management of Neonatal Jaundice and Prevention of Kernicterus. *Research Journal of Pharmacy and Technology*, 8(8):1087–1087.

Ilankizhai, R. J., Devi, R. G. 2016. Role of environmental factors on sleep patterns of different age groups. *Asian Journal of Pharmaceutical and Clinical Research*, 9(6):124–124.

Iyer, P. K., Devi, R. G., Priya, A. J. 2019. A Survey Study on Causes, Treatment and Prevention of Onychocryptosis. *Indian Journal of Public Health Research & Development*, 10(8):807–807.

Lima, L., Dias, E., Viana, D., Santos, A., Ferreira, G., Souza, F., Castillo, L., Sousa, A. 2015. Características dos produtores e propriedades de bubalinos na baixada Maranhense. *PubVet*, 9:418–421.

Renuka, S., Sethu, G. 2015. Regeneration after Myocardial Infarction. *Research Journal of Pharmacy and Technology*, 8(6):738–738.

Samuel, A. R., Devi, M. G. 2015. Geographical distribution and occurrence of Endemic Goitre. *Research Journal of Pharmacy and Technology*, 8(8):973–973.

Sethu, G., Devi, R. G. 2018. Evaluation of Adenoids by Oronasal and Nasal Spirometry. *Asian Journal of Pharmaceutical and Clinical Research*, 11(10):272–272.

Shruthi, M., Preetha, S. 2018. Effect of Simple Tongue Exercises in Habitual Snorers. *Research Journal of Pharmacy and Technology*, 11(8):3614–3614.

Swathy, S., Sethu, V. G. 2015. Acupuncture and lower back pain. *Research Journal of Pharmacy and Technology*, 8(8):991–991.

Timothy, C. N., Devi, R. G., Priya, A. J. 2019. Evaluation of Peak Expiratory Flow Rate (PEFR) in Pet Owners. *Indian Journal of Public Health Research & Development*, 10(8):803–803.

Uraz, A., Karaduman, B., Isler, S. Ç., Gönen, S., Çetiner, D. 2019. Ozone application as adjunctive therapy in chronic periodontitis: Clinical, microbiological and biochemical aspects. *Journal of Dental Sciences*, 14(1):27–37.

Wyatt, T. 2015. Hazardous Waste and Pollution, Google Books. pages 3–3.