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Awareness On Naproxen In Dental Applications

Mohamed Thamemul Ansari.K.A. [1] , Dhanraj Ganapathy[2*]

[1]Undergraduate student, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai, India Email ID: 151701076.sdc@saveetha.com Contact number: +91-8939701750

[2*]Professor and Head, Department of prosthodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai, India Email ID: dhanraj@saveetha.com Contact number: +91-9841504523

ABSTRACT

Background

Non steroidalanti inflammatory drugs (NSAIDS) are the drugs that reduce pain, inflammation, fever and prevent the blood clot formation. Dosage can be different according to its needs. These drugs have side effects also depending on the specific drugs used. Among NSAIDS, Naproxen is one of the important drugs which has many uses in general and also in dentistry.

Materials and methods

15 Questions related to the uses and side effects of naproxen are created and distributed among dental students via online portal. 200 participants responded to this survey. Both BDS and MDS students participated. Responses were collected and statistically analysed using spss software. Results were collected and concluded

Results

From the collected data it is seen that 32% of BDS students and 29% of MDS students are aware about naproxen and its uses in dentistry.

Conclusion

95% of participants felt useful and gained knowledge by this survey. Naproxen is a most common drug prescribed by dentists. But without proper knowledge about the uses and side effects of the drug can lead to life threatening problems to the patients. Surveys and studies like this helps in gaining the knowledge about naproxen and other NSAID drug

Keywords Naproxen, dentist, NSAIDS, drug, innovative technique.

INTRODUCTION

Non steroidalanti inflammatory drugs (NSAIDS) are a class of medications that have pain relieving, antipyretic and anti inflammatory activities in different measures. They are also called as non opioid or

anti-inflammatory medicine like analgesics.(1) They act essentially on fringe torment instruments, yet additionally in the CNS to raise the torment edge(2). They are all the more regularly utilized and many are over-the-counter or nonprescription medications. NSAIDs are from a medication class that diminishes pain, diminishes fever, blood clumps, and in higher portions, diminishes irritation. Results rely upon the particular medication yet generally incorporate an expanded danger of gastrointestinal ulcers and drains, coronary episode, and kidney sickness.(3) The term nonsteroidal recognizes these medications from steroids, which while having a comparative eicosanoid-discouraging, mitigating activity, have a wide scope of different impacts. (4)First utilized in 1960, the term served to separate these drugs from steroids, which were especially derided at the time because of the meanings with anabolic steroid misuse.(5) NSAIDs work by restraining the action of cyclooxygenase chemicals (COX-1 or COX-2).(6) In cells, these chemicals are associated with the blend of key natural go-between, in particular prostaglandins, which are associated with aggravation, and thromboxanes, which are associated with blood coagulating.(7)

There are two sorts of NSAIDs accessible: non-specific and COX-2 particular. Most NSAIDs are non-particular and restrain the movement of both COX-1 and COX-2.(7,8) These NSAIDs, while diminishing aggravation, additionally restrain platelet accumulation and increase the danger of gastrointestinal ulcers/drains.(9) COX-2 particular inhibitors have less gastrointestinal results yet advance apoplexy and a portion of these specialists significantly increase the danger of cardiovascular failure.(10)Therefore, certain more seasoned COX-2 particular inhibitors are not, at this point, utilized because of the great danger of undiscovered vascular sickness.(11) These differential impacts are because of the various jobs and tissue localisations of each COX isoenzyme. By restraining physiological COX movement, all NSAIDs increase the risk of kidney illness or respiratory failure. (12)Likewise, NSAIDs can dull the creation of erythropoietin bringing about iron deficiency, since hemoglobin needs this chemical to be delivered. Delayed use is perilous and contextual investigations have shown the wellbeing hazard with celecoxib. Our team has extensive knowledge and research experience that has translate into high quality publications(13–21),(22–27),(28–32)

The most unmistakable NSAIDs are headache medicine, ibuprofen, and naproxen, all accessible over the counter (OTC) in many nations. Paracetamol (acetaminophen) is for the most part not considered a NSAID since it has just minor calming action. (33)Acetaminophen treats torment principally by obstructing COX-2 and hindering endocannabinoid reuptake solely inside the cerebrum, however very little in the remainder of the body.(34) The antiinflammatory activity is stronger and it's particularly potent in inhibiting leukocyte migration-may be more valuable in acute gout: dose 750 mg stat followed

by 250 mg 8 hourly till attack subsides. (35)It's also recommended for atrophic arthritis and Marie-Strumpell disease . due to longer t½, regular use can effectively suppress platelet function. Gastric bleeding is more common than with ibuprofen. naproxen carries lower thrombotic risk than diclofenac,etoricoxib, etc. Dose should be reduced within the elderly.(36) The aim of this study is to create awareness among the dental students about naproxen and its uses and side effects related to dentistry.

MATERIALS AND METHODS

This is a questionnaire-based study. A questionnaire was prepared with questions pertaining to properties,uses of naproxen . The survey was conducted among college going students in South India.The participants volunteered for the survey.The questionnaire was administered through a google form link to all the participants. 200 students have participated in the survey. All of the participants were ensured to have answered all the questions in the questionnaire and none of the participants were excluded from the study. The results were statistically analyzed using SPSS v22 and output variables were represented as bar charts.

RESULTS

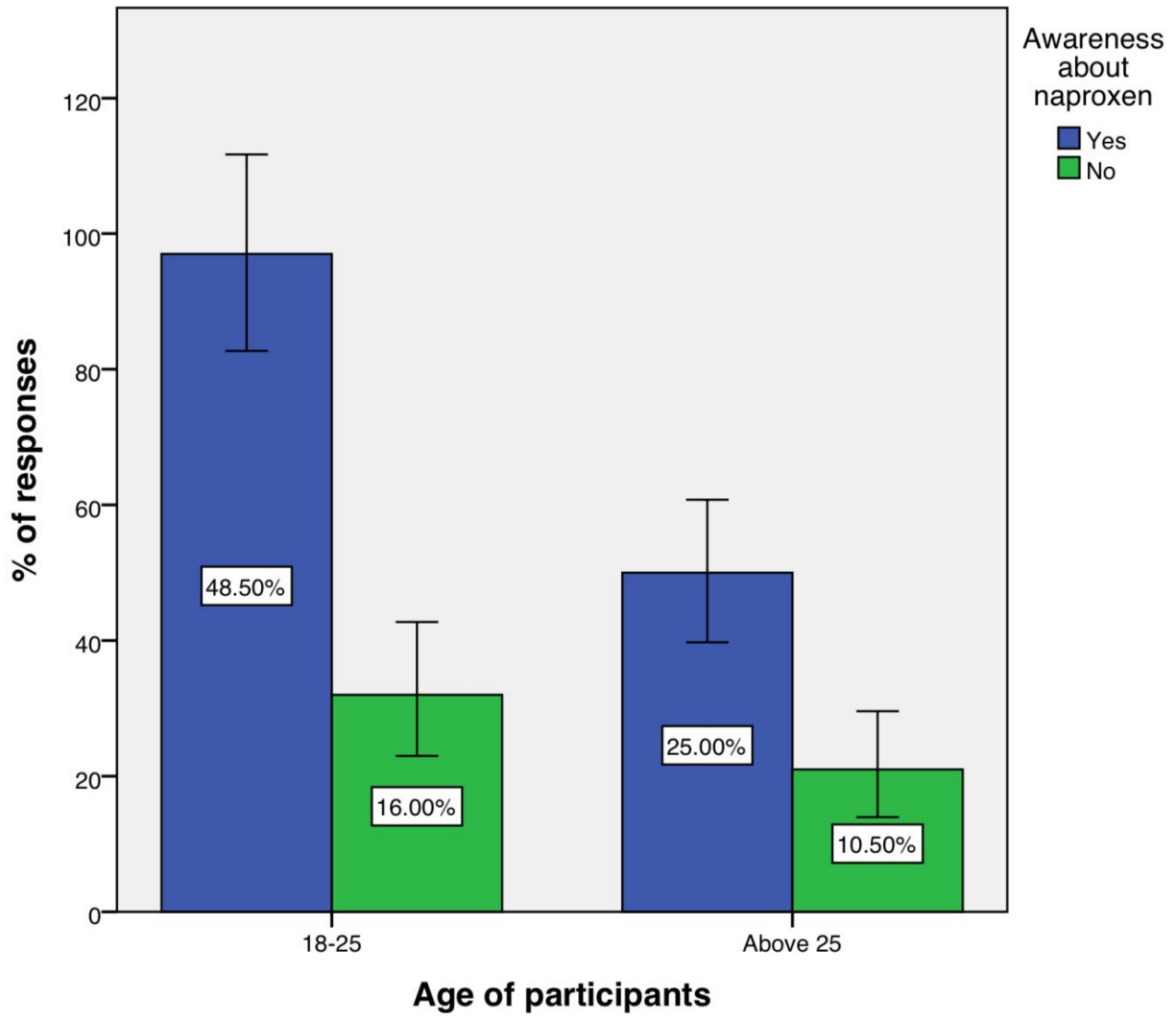

Figure 1: Bar graph represents the awareness about naproxen compared with the age of the participants. X- axis denotes age and Y axis denotes No.of respondents (in %). Blue denotes the YES and green denotes NO.

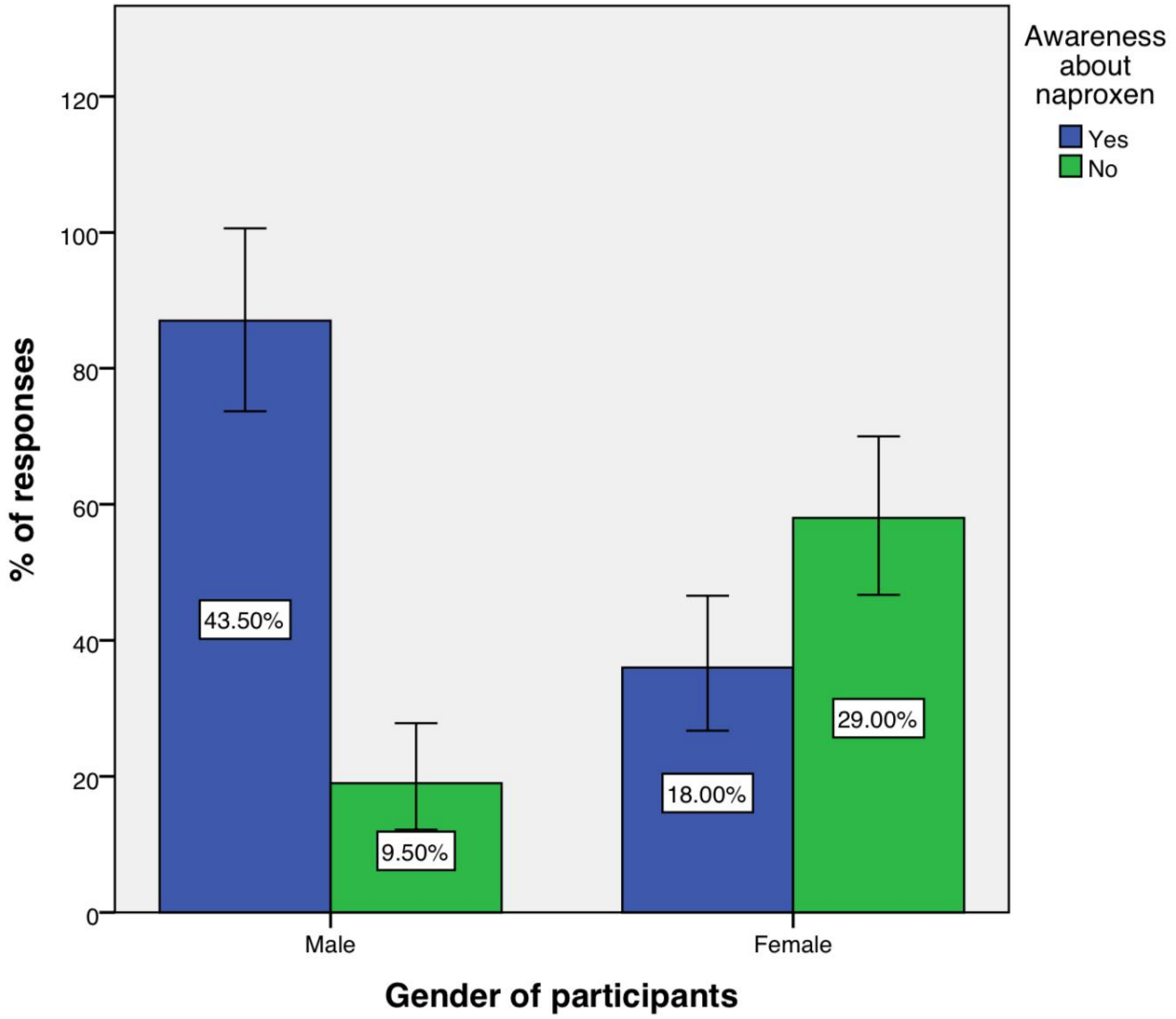

Figure 2: Bar graph represents the awareness of naproxen comparison with the gender of the participants. X- axis denotes course of study and Y axis denotes No.of respondents (in %). Blue denotes the YES and green denotes NO.

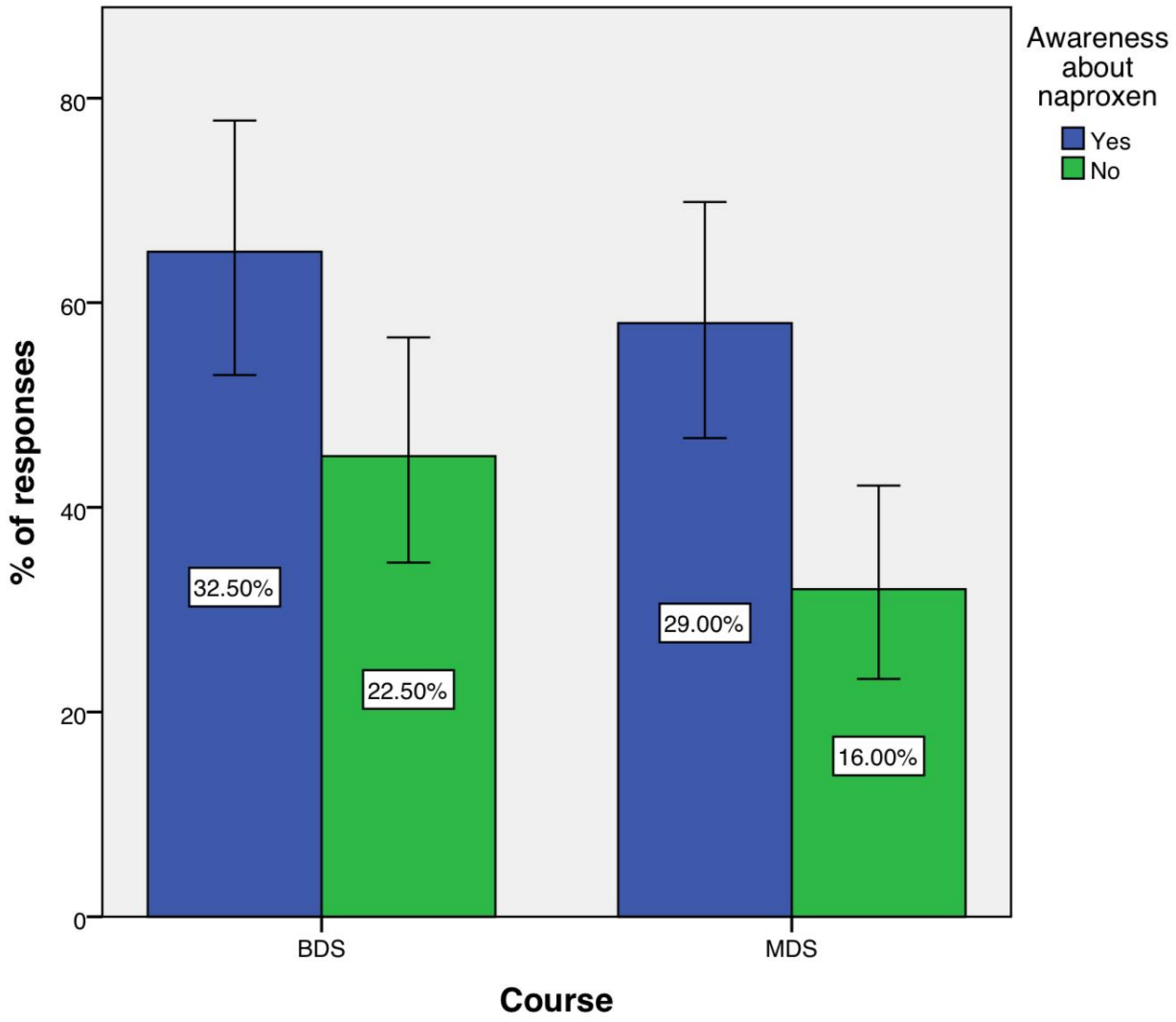

Figure 3: Bar graph represents the awareness of naproxen comparison with the course of study of the participants. X- axis denotes course of study and Y axis denotes No.of respondents (in %). Blue denotes the YES and green denotes NO.

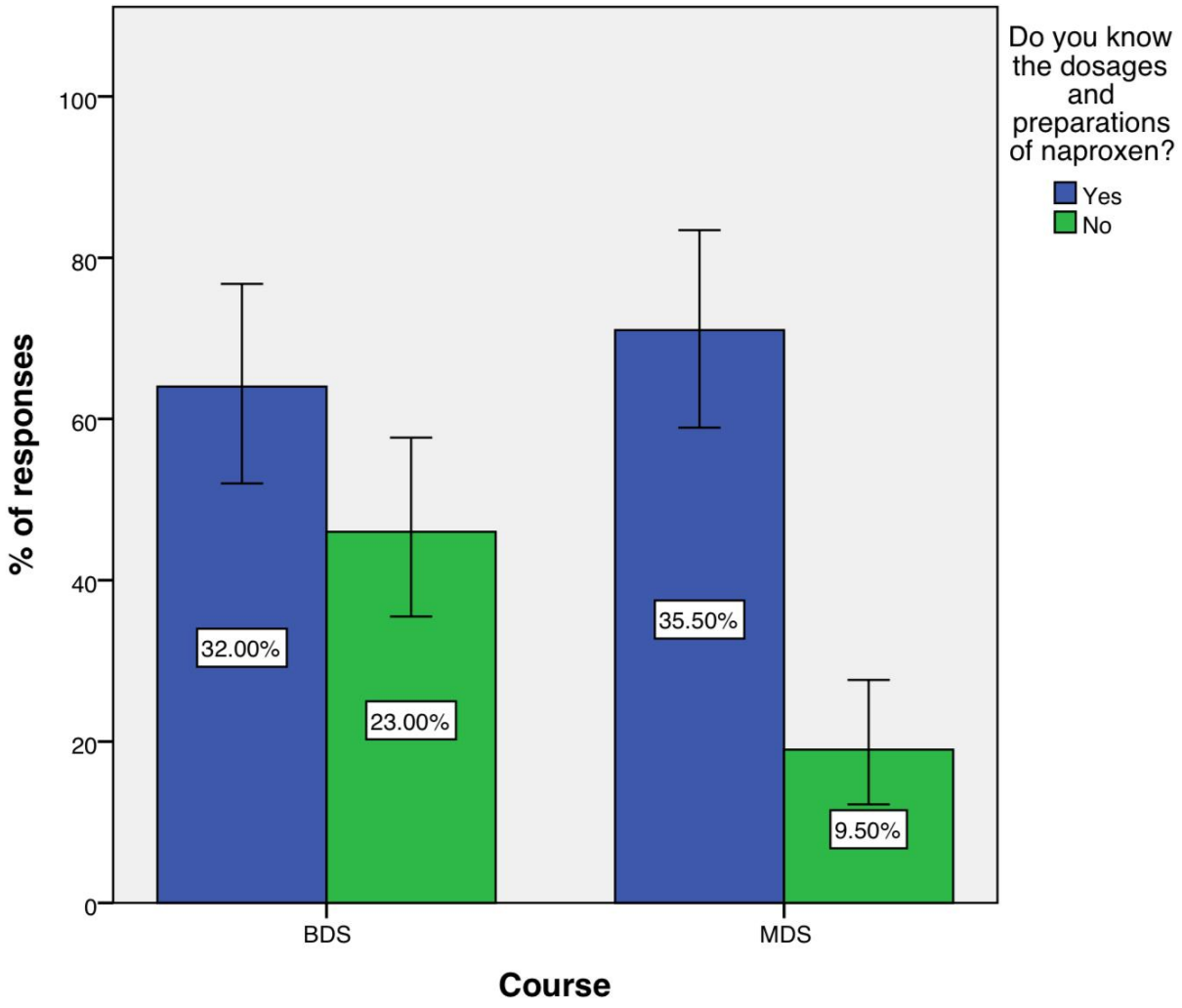

Figure 4: Bar graph represents the knowledge about dosage and preparations of naproxen. X axis denotes course Y axis denotes no.of responses (in %). Blue denotes the YES and green denotes NO.

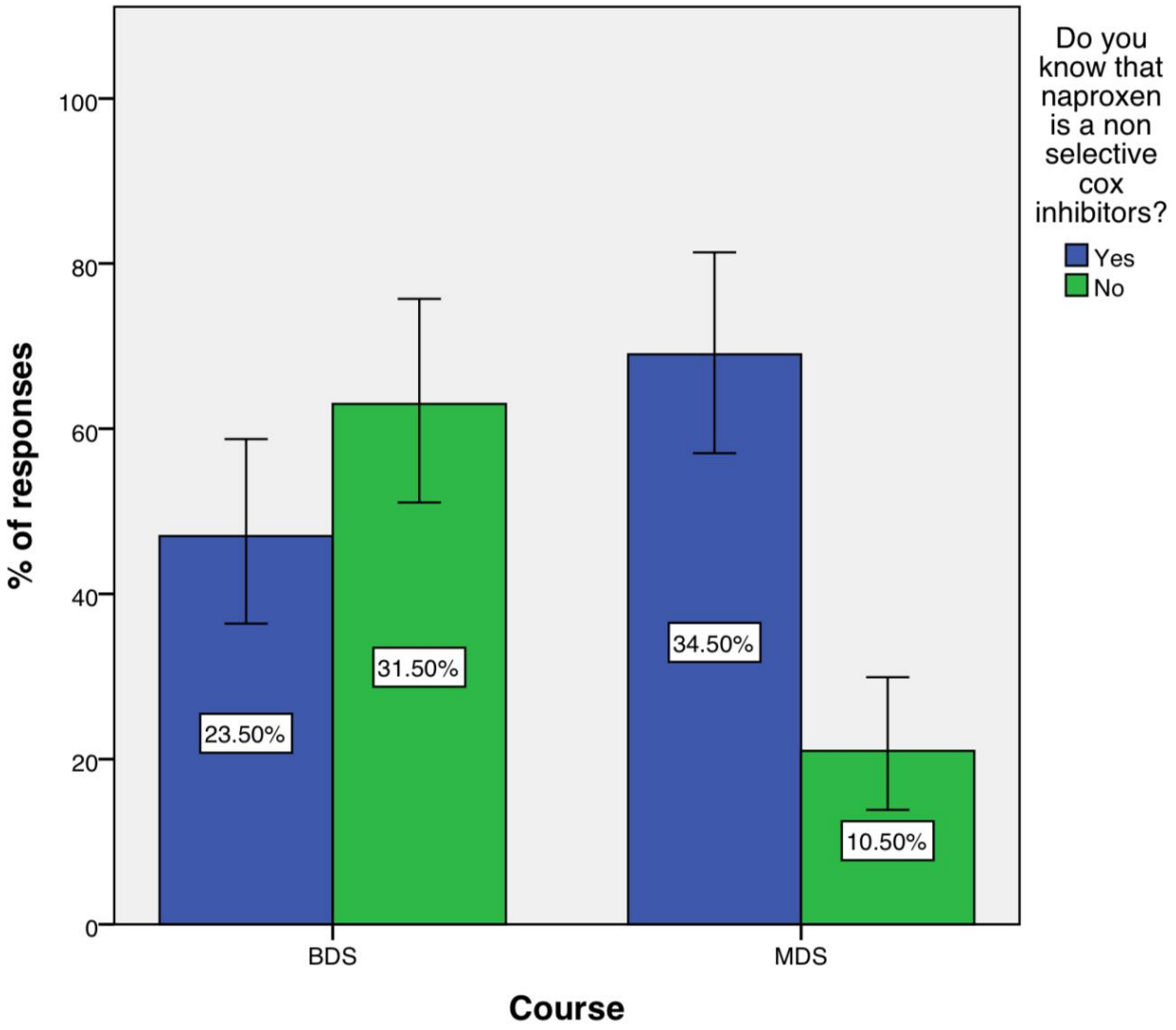

Figure 5: Bar graph represents the knowledge about naproxen classification among participants. X axis denotes course Y axis denotes no.of responses (in %). Blue denotes the YES and green denotes NO.

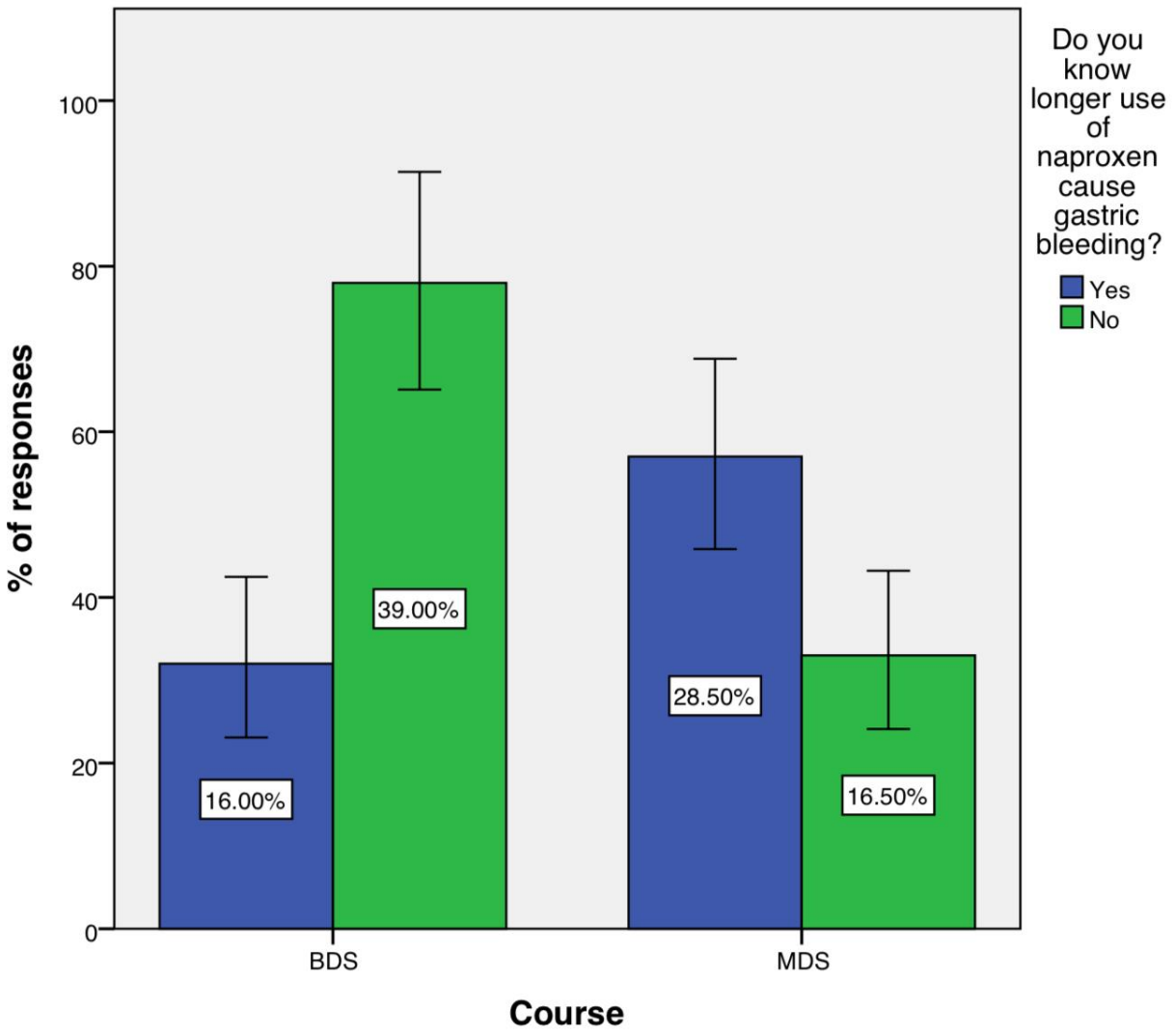

Figure 6: Bar graph represents the knowledge about naproxen effect in stomach among participants. X axis denotes course Y axis denotes no.of responses (in %). Blue denotes the YES and green denotes NO.

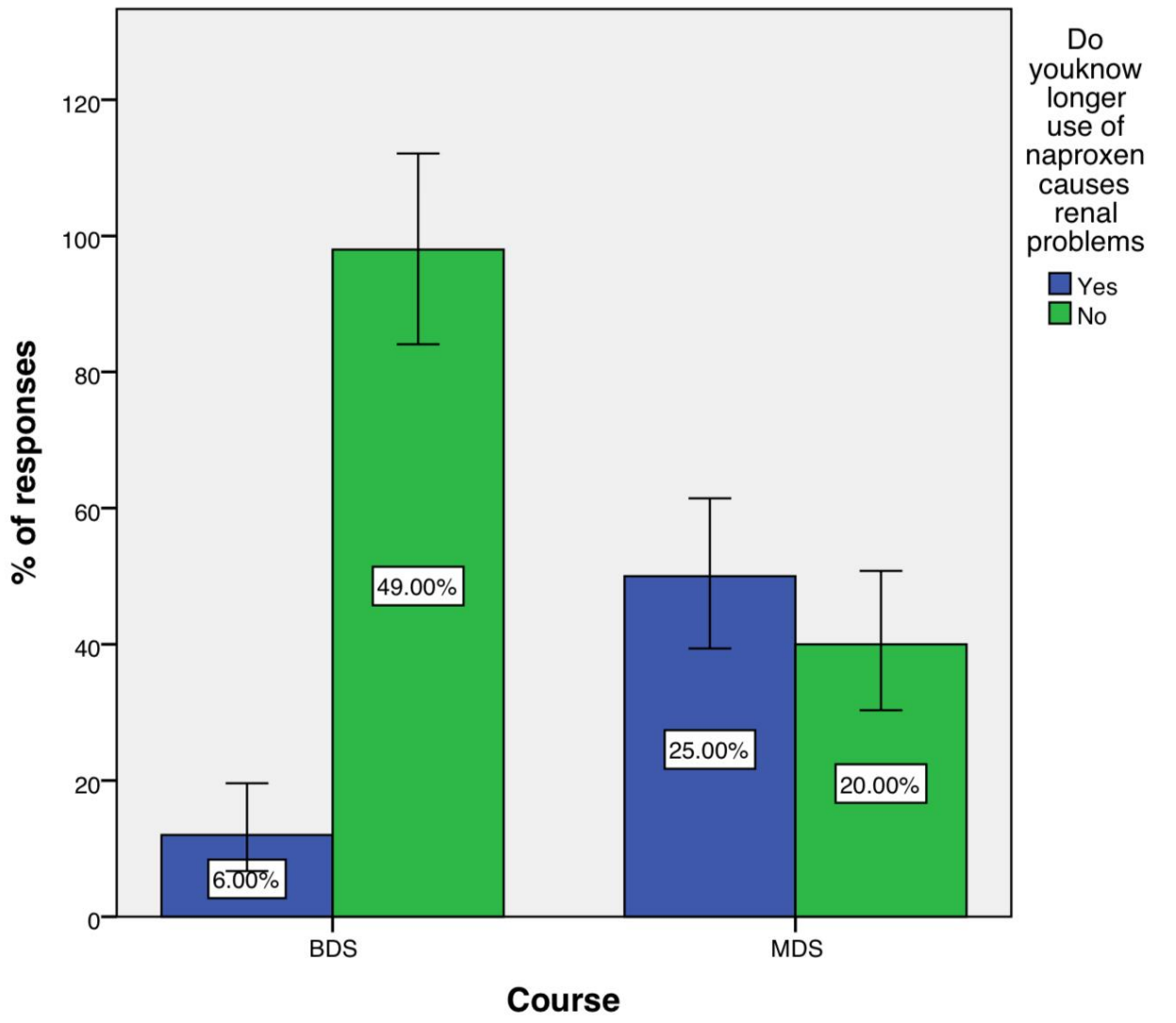

Figure 7: Bar graph represents the knowledge about naproxen effects in kidneys among participants. X axis denotes course Y axis denotes no.of responses (in %). Blue denotes the YES and green denotes NO.

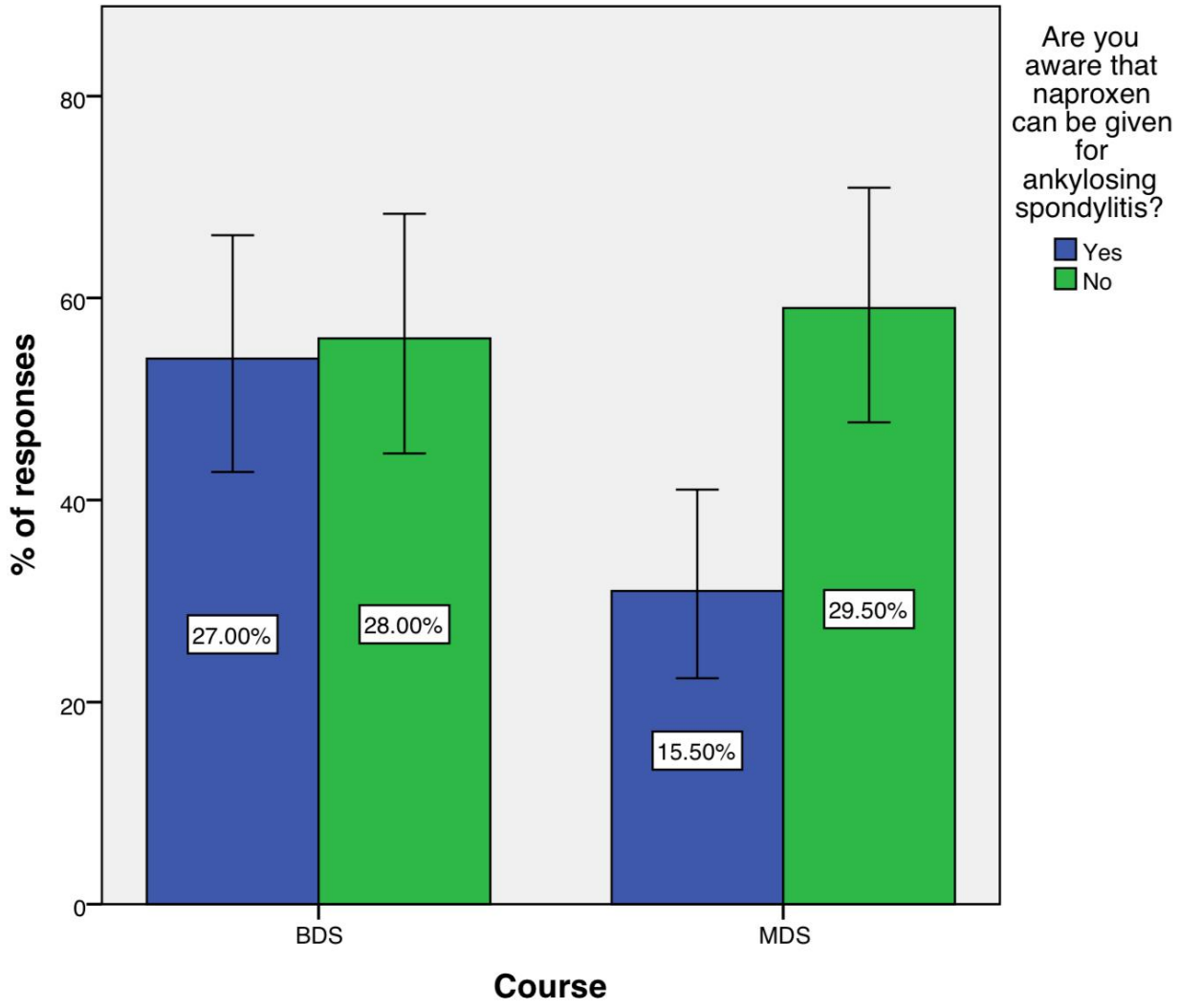

Figure 8: Bar graph represents the knowledge about uses of naproxen among participants. X axis denotes course Y axis denotes no.of responses (in %). Blue denotes the YES and green denotes NO.

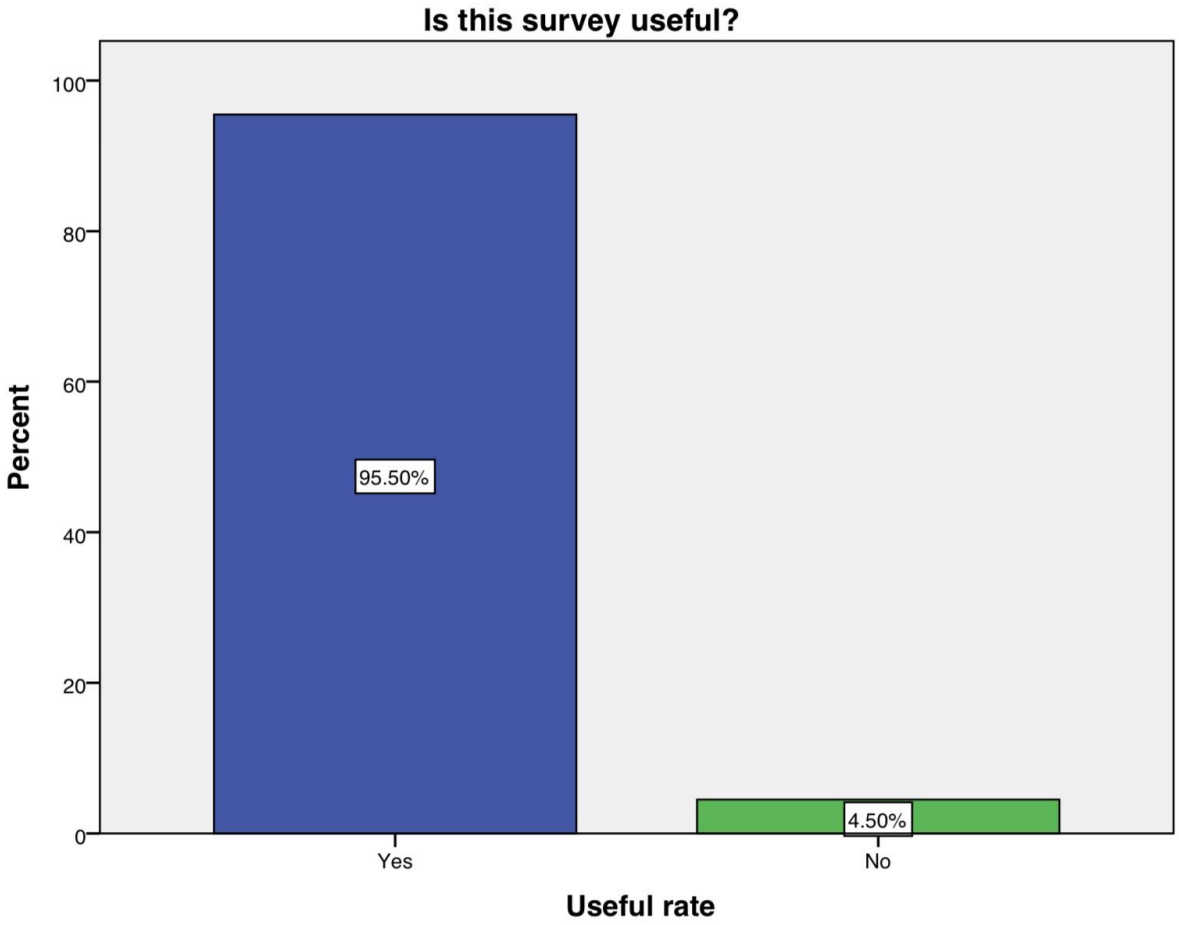

Figure 9: Bar graph represents the use of the survey. X- axis denotes useful rate and Y axis denotes No.of responses (in %). Blue denotes the YES and green denotes NO.

DISCUSSION

In this survey, among the age group between 18-25 years, 48.50% of the respondents have awareness about naproxen and among above 25 years age only 25% of the respondents have awareness. (Fig.1) From figure 2 it is seen that males (43%) are having more awareness about naproxen than females (18%). Naproxen as a basic NSAID, among course BDS (32%) students are having more awareness about naproxen than MDS (29%) students.(Fig.3) Naproxen has many types of preparations and dosages. Dosages are prescribed according to the needs of the patients. 35% of MDS students are aware and 32% of BDS students are aware about naproxen different dosages and preparations.(Fig.4) Among NSAIDS groups of drugs, naproxen is a non-selective COX inhibitor. These drugs inhibit both COX-1 and COX-2 receptors and result in decreasing the prostaglandins synthesis. (37)Many dentists would prefer non-

selective cox inhibitors as a pain killer after any minor surgical procedure like extraction. Only 23% of BDS students are aware and 35% of MDS are aware that naproxen is a non-selective COX inhibitor.(Fig.5) Previous studies have shown that increased usage of naproxen causes ulcer in stomach, gastric bleeding and even holes in stomach and intestines. If unnoticed it may even cause death.(38)(38,39) Dentists should not give NSAIDS without any antacid drug which will protect the stomach from heavy dosages. In this study, only 16% BDS students and 23% MDS students have awareness and 39% BDS and 17% MDS students don't know about this adverse effect of naproxen.(Fig.6) Other effects like renal problems are also one of the major side effects caused by naproxen. Higher doses of naproxen, aspirin can cause chronic intestinal nephritis.(40) In patients without renal diseases, young and without comorbidities, NSAIDs are not greatly harmful. However, because of its dose-dependent effect, caution should be exercised in chronic use, since it increases the risk of developing nephrotoxicity. Dentists should take a proper medical history about patients' medical condition especially about any renal problems and then can prescribe naproxen for them to use as a painkillers. Only 6% of BDS and 29% MDS students know about side effects of naproxen related to renal problems and 49% BDS and 20% MDS students don't know about it. (Fig.7)

Naproxen is also given for ankylosing spondylitis which can reduce pain, stiffness and inflammation for the patient.(41) Naproxen is FDA-approved for treating acute gout, ankylosing spondylitis, bursitis, polyarticular juvenile idiopathic arthritis, osteoarthritis, tendonitis, rheumatoid arthritis, pain, and primary dysmenorrhea. It is the first-line treatment for acute gouty arthritis, osteoarthritis, musculoskeletal pain, inflammation, and dysmenorrhea(42). While naproxen and other NSAIDs are approved for the treatment of inflammatory arthropathies such as rheumatoid arthritis and ankylosing spondylitis, they do not alter the course of the disease, nor do they prevent joint and soft tissue destruction that are common sequelae of these diseases. This activity outlines the indications, mechanism of action, methods of administration, significant adverse effects, contraindications, monitoring, and toxicity of naproxen, so providers can direct patient therapy to optimal outcomes when pain relief is needed. 27% BDS and 15% MDS know about this.(Fig.8) This survey was mainly conducted to give awareness about naproxen and usage of naproxen in dentistry. 95% of participants felt this survey was useful in gaining knowledge about naproxen and its usage in dentistry.(Fig.9) More studies and surveys related to naproxen and NSAID drugs can help future dentists to gain more knowledge about it. Naproxen blocks arachidonate binding to competitively inhibit both cyclooxygenase (COX) isoenzymes, COX-1 and COX-2, resulting in analgesic and anti-inflammatory effects. COX-1 and COX-2 are catalysts of arachidonic acid conversion to prostaglandin G (PGG), the first step of the synthesis of

prostaglandins and thromboxanes involved in rapid physiological responses. COX-1 is constitutively expressed in most tissues, while COX-2 is only expressed in the brain, kidney, bones, reproductive organs, and select tumors such as colon and prostate cancers. COX-1 is responsible for prostaglandin synthesis in response to stimulation by circulating hormones and maintaining healthy renal function, gastric mucosal integrity, and hemostasis. COX-2 is inducible in many cells in response to specific mediators of inflammation (e.g., interleukin-1, tumor necrosis factor, lipopolysaccharide)(43). Primary adverse effects for naproxen include dyspepsia, nausea, dizziness, elevated liver enzymes, increased blood pressure, diminished renal function, rash, increased bleeding risk, and GI ulcers. Serious but rare adverse effects include blood dyscrasias, Stevens-Johnson syndrome, myocardial infarction, stroke, heart failure, and anaphylaxis. Naproxen is readily available OTC and widely used for pain relief for many different types of patients.(44) Some of these patients take medications or have medical comorbidities that place them at a significantly higher risk of serious adverse events. Yet, they are unaware of the risk and may think that naproxen's availability OTC means its use is safe for everyone.(45) It is essential for all interprofessional healthcare team members who work in a primary care setting to routinely ask their patients whether they are taking OTC medications and educate them about the potential risks and benefits of NSAIDs, particularly related to their specific medical histories and conditions.(46) It is also crucial for specialist healthcare providers to communicate with primary care providers, nurse practitioners, and pharmacists when starting medication or to treat a patient for a condition in which NSAID therapy is not advised or contraindicated. Providers should also educate their patients about their medical condition and how it affects their ability to take a widely available OTC medication.(47) These interprofessional team activities will increase therapeutic effectiveness and prevent unwanted adverse effects.

CONCLUSION

95% of participants felt useful and gained knowledge by this survey. Naproxen is a most common drug prescribed by dentists. But without proper knowledge about the uses and side effects of the drug can lead to life threatening problems to the patients. Surveys and studies like this help in gaining the knowledge about naproxen and other NSAID drugs . In recent studies it has been found that the analgesic effect of naproxen was expressed quickly and was sustained after oral surgery. More awareness needs to be created that naproxen can be used in dental applications.

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