

KNOWLEDGE ATTITUDE AND PRACTICE REGARDING PERI OPERATIVE USE OF ANTIBIOTICS DURING EXTRACTION AMONG DENTAL PRACTICE

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ABSTRACT-

Antibiotics are prescribed by dentists in dental practice, during dental treatment as well as for prevention of infection. Indications for the use of systemic antibiotics in dentistry are limited because most dental and periodontal diseases are best managed by operative intervention and oral hygiene measures. The use of antibiotics in dental practice is characterised by empirical prescription based on clinical and bacteriological epidemiological factors, resulting in the use of a very narrow range of broad-spectrum antibiotics for short periods of time. A set of 12 questions was formulated and distributed among the study. The participants were asked to fill the questionnaire. The survey was conducted in an online forum. A total of 100 validated entries were collected. Data was entered into Microsoft Excel and analysed in SPSSV20. Associations between categorical variables were determined using Chi-square. $P < 0.05$ was considered statistically significant. Most of the population are not aware about the peri operative use of antibiotics in immunocompromised patients which is about 58%. Most of the population agree preoperative antibiotics are given if there is sign of systemic infection which is about 62%. Most common antibiotic prescribed is amoxicillin which is about 62% and 78% of them responded that they prescribe 500mg dosage. Due to the increasing prevalence of bacteria that are resistant to antibiotic treatment, clinicians should evaluate if and when to prescribe prophylactic antibiotic therapy before a dental extraction for each patient on the basis of the patient's clinical conditions.

KEYWORDS- Antibiotics, Extraction, Dry socket, Systemic disease, Dental procedure

INTRODUCTION-

Antibiotics are prescribed by dentists in dental practice, during dental treatment as well as for prevention of infection. Indications for the use of systemic antibiotics in dentistry are limited because most dental and periodontal diseases are best managed by operative intervention and oral hygiene measures [1]. The use of antibiotics in dental practice is characterised by empirical prescription based on clinical and bacteriological epidemiological factors, resulting in the use of a very narrow range of broad-spectrum antibiotics for short periods of time [2]. This has led to the development of antimicrobial resistance (AMR) in a wide range of microbes and to the consequent inefficacy of commonly used antibiotics. Dentists can make a difference by the judicious use of antimicrobials – prescribing the correct drug, at the standard dosage and appropriate regimen – only when systemic spread of infection is evident. Antibiotic use may be associated with unfavourable side effects, ranging from gastrointestinal (GI) disturbances to fatal anaphylactic shock and development of resistance [3][4][5]. The increasing antibiotic-resistance problems of recent years are probably related to the over- or misuse of broad-spectrum agents, such as cephalosporins and fluoroquinolones. In dentistry most commonly used antibiotics are Amoxicillin and Clindamycin. Amoxicillin is prescribed to treat variety of bacterial infections. Dental abscess, Sinusitis, and Acute

Necrotising Ulcerative Gingivitis and Pericoronitis are bacterial infections that are treated with amoxicillin[6][7]. Teeth that are affected by decay or gum disease or painful wisdom teeth are often removed (extracted) by dentists. Tooth extraction is a surgical procedure that leaves a wound in the mouth that can become infected[7,9][10]. Infection can lead to swelling, pain, development of pus, fever, as well as 'dry socket' (where the tooth socket is not filled by a blood clot, and there is severe pain and bad odour). These complications are unpleasant for patients and may cause difficulty with chewing, speaking, and teeth cleaning, and may even result in days off work or study. Treatment of infection is generally simple and involves drainage of the infection from the wound and patients receiving antibiotics[11][12]. Under the direction of a patient's dentist and/or oral surgeon, antibiotics are sometimes prescribed prior to or after an invasive dental procedure even if an infection is not currently present to prevent an infection from occurring. This is called "antibiotic prophylaxis"[13]. Dental extractions are usually straightforward and safe treatments. However, there are certain conditions that might put a patient at a higher risk of developing an infection.[14][15]. Our team has extensive knowledge and research experience that has translate into high quality publications[16],[17],[18],[19],[19] [20],[21–23].[24,25].

Aim:

The aim of the study is to create awareness regarding peri operative use of antibiotics during extraction among dental practitioners.

MATERIALS AND METHODS-

This study was carried out in an online setting with the advantage of flexible data retrieved and the disadvantage of statistical error while recording. The questionnaire consisted of 12 questions, and was distributed in the online forum "Google form". The questionnaire was based on the peri operative use of antibiotics during extraction among dental practitioners . All the datas was analysed by multiple logistic and tabulated in MS excel sheet and variables were added and imported to SPSS. Using SPSS Version 20.0, descriptive statistics were carried out and figures were plotted to arrive at final inference.

RESULTS AND DISCUSSION-

100 participants participated in the survey, they were categorised according to their age in which the 18-25 years were 48%, 26-35 years were 24%, 36-50 were 17% and <50 were 11%(Figure 1). In which 57% were males and 43% were females (Figure 2), out of which 64% of them are aware of antibiotic prophylaxis (Figure3). Most of the population are not aware about the peri operative use of antibiotics in immunocompromised patients which is about 58% (Figure4). Most of the population agree preoperative antibiotics are given if there is sign of systemic infection which is about 62% (Figure5), Most common antibiotic prescribed is amoxicillin which is about 62% (Figure6) and 78% of them responded that they prescribe 500mg dosage (Figure 7). 71% are aware of antibiotic prophylaxis for infective endocarditis patients (Figure8). 57% of them are aware of antibiotic prophylaxis for prosthetic leg infection (Figure9). 60% of the population agree peri operative use of antibiotics is compulsory for implant placement (Figure 10). 63% of the population agree all extraction cases need pre operative antibiotics (Figure 11). 58% of the population believe post extraction antibiotics are a must (Figure-12) By comparing gender and most common antibiotics prescribed 45% of males responded that they prescribe amoxicillin and 17% of females responded that they prescribe amoxicillin. This indicates that males prescribe amoxicillin more than females and are statistically significant. Chi square test showing P value =0.000 which is found to be statistically significant (Figure 13). By comparing gender and need of antibiotics post extraction . 32% of males responded that there is no need for antibiotics post extraction and 25% of them responded that there is need for antibiotics post extraction. 33% of females responded that post extraction antibiotics are a must . This indicates that females are more aware about post extraction antibiotics than male and are statistically significant. Chi-square test showing P value =0.001 which is statistically significant (Figure 14).

According to Deepa et al[26,27], Out of the 483 patients evaluated two patients had pain and showed slight edema and erythema. These patients were considered as having an active infection and were prescribed therapeutic antibiotics..

According to Yousuf et al[28], Only 1 patient (0.7%) was reported with infection of the extraction socket in the non antibiotic group, whereas no case of infection was found in the antibiotic group. Antibiotics are not required after

simple extractions in patients who are not medically compromised nor do they have any role in preventing postoperative complications.

According to Suda K et al[29] The majority of patients undergoing a dental procedure received antibiotic prophylaxis. Although patients for whom antibiotic prophylaxis was indicated should have received a single pre-procedure dose, most antibiotics were prescribed post-procedure. Dental stewardship efforts should ensure appropriate antibiotic timing, indication, and duration.

According to Suda KJ et al[30] More than 80% of antibiotic prophylaxis prescriptions before dental procedures are unnecessary: clindamycin use, the presence of prosthetic joints, and residence in the western United States were associated with unnecessary prescribing. While antibiotic prophylaxis is appropriately prescribed for indicated dental procedures in patients with cardiac conditions, most antibiotic prophylaxis is prescribed to patients in whom guideline-identified risk factors are not present. Although prescribing is slowly improving, the high proportion of antibiotics that were found to be unnecessary in our study is worrisome. Implementing antimicrobial stewardship efforts in dental practices is an opportunity to improve antibiotic prescribing for infection prophylaxis.

CONCLUSION-

Antibiotics given just before or just after surgery (or both) may reduce the risk of infection and dry socket after the removal of teeth by oral surgeons. However, antibiotics may cause more unwanted effects for these patients. Due to the increasing prevalence of bacteria that are resistant to antibiotic treatment, clinicians should evaluate if and when to prescribe prophylactic antibiotic therapy before a dental extraction for each patient on the basis of the patient's clinical conditions (healthy or affected by systemic pathology) and level of risk from infective complications.

ACKNOWLEDGEMENT - I sincerely thank my Guide, Mentor, Department of Research & IT Saveetha Dental College and Hospitals, Saveetha Institute Medical and Technical Sciences, Saveetha University for making me complete the research work.

CONFLICT OF INTEREST -Nil

SOURCE OF FUNDING-

The present project is supported/funded/sponsored by
Saveetha Institute of Medical and Technical Sciences
Saveetha Dental College and Hospitals
Saveetha University

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Figure 1-The bar depicts the question “Age?” Out of which 48% belonged to category 18-25 years, 24% to 26-35 years, 17% to 36-50 years and 11% to <50 years.

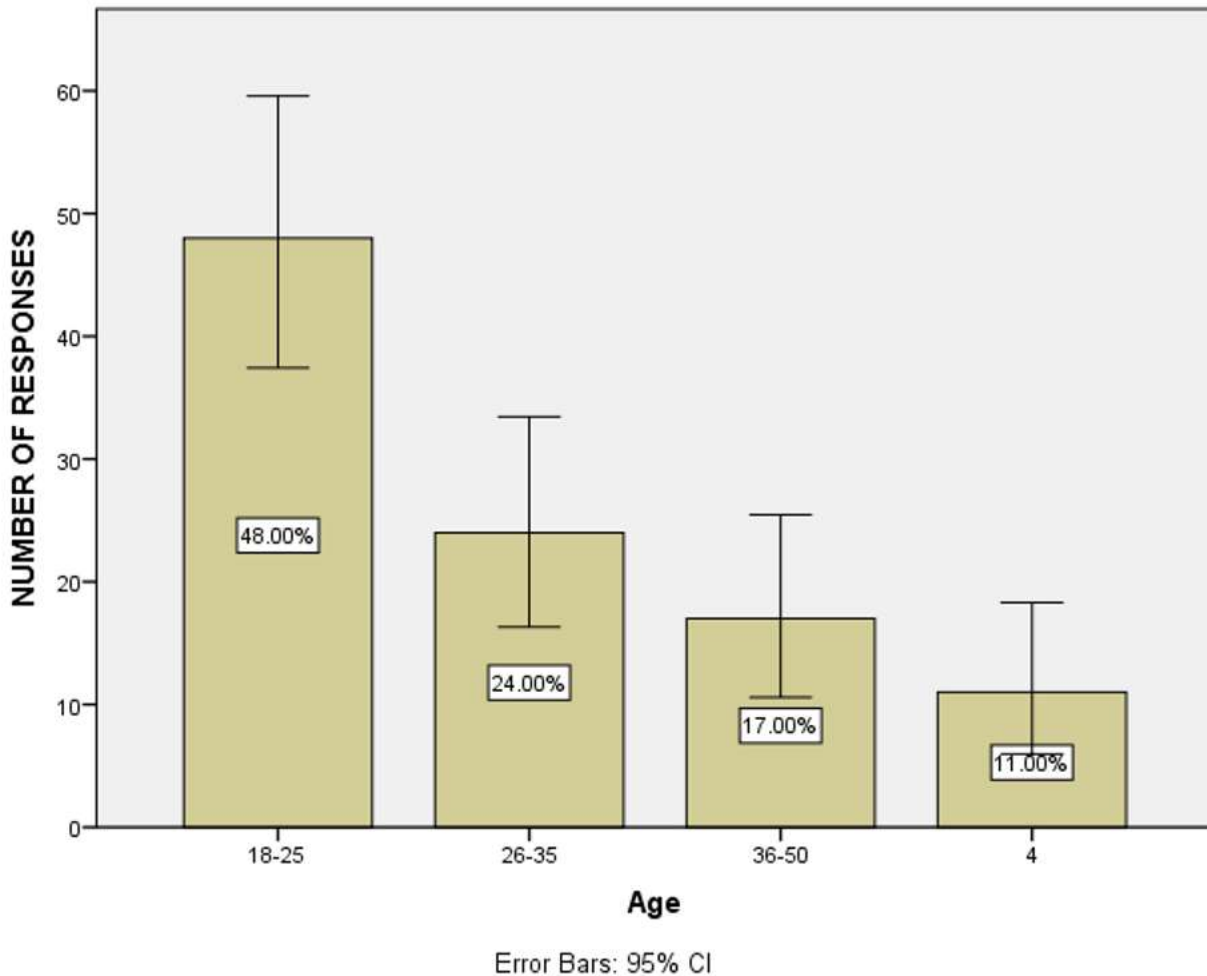


Figure 2-The bar depicts the question “Gender?” Out of which 57% are males and 43% are females.

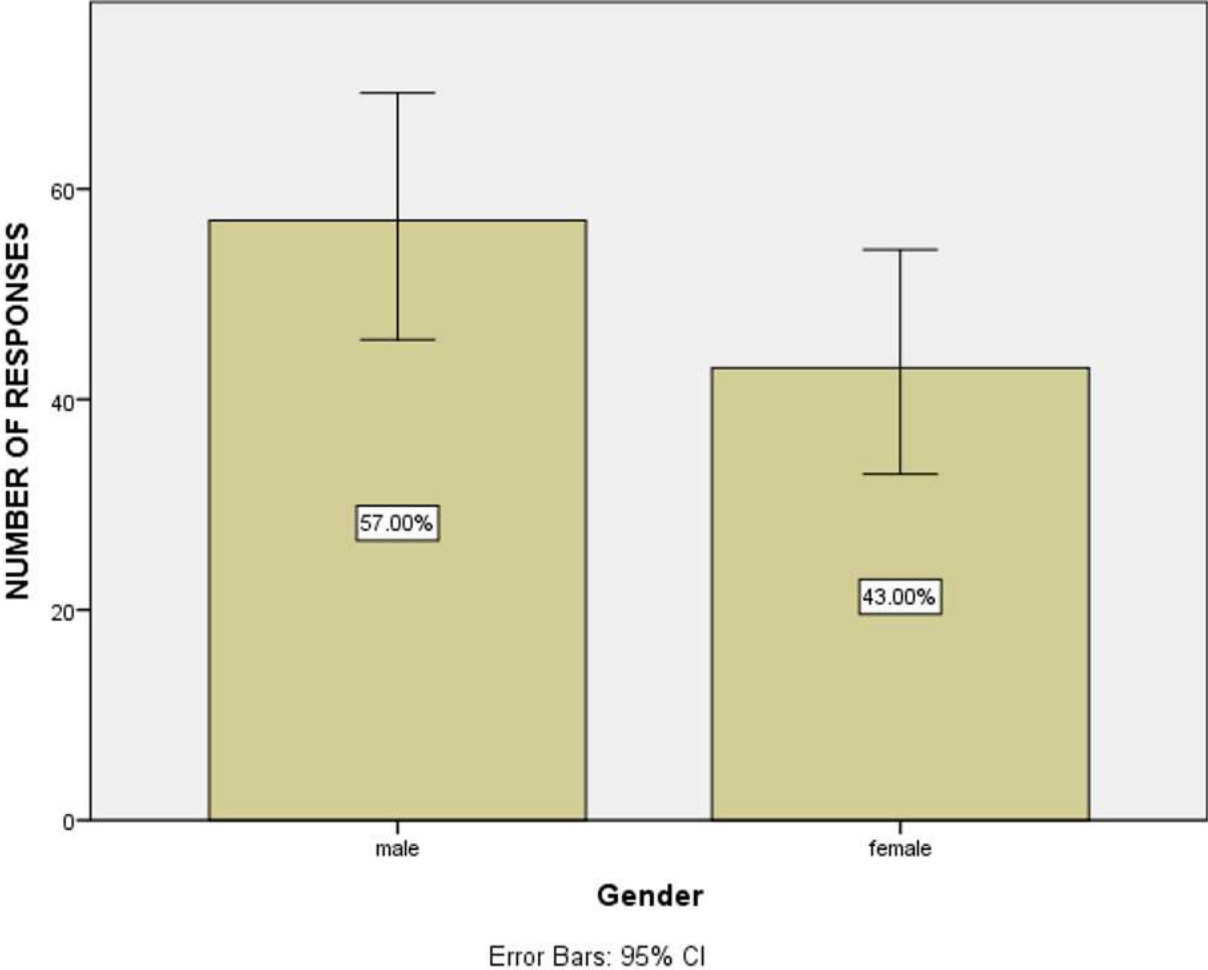


Figure 3-The bar depicts the question “Are you aware of antibiotic prophylaxis ?” Out of which 64% responded yes and 36% responded no.

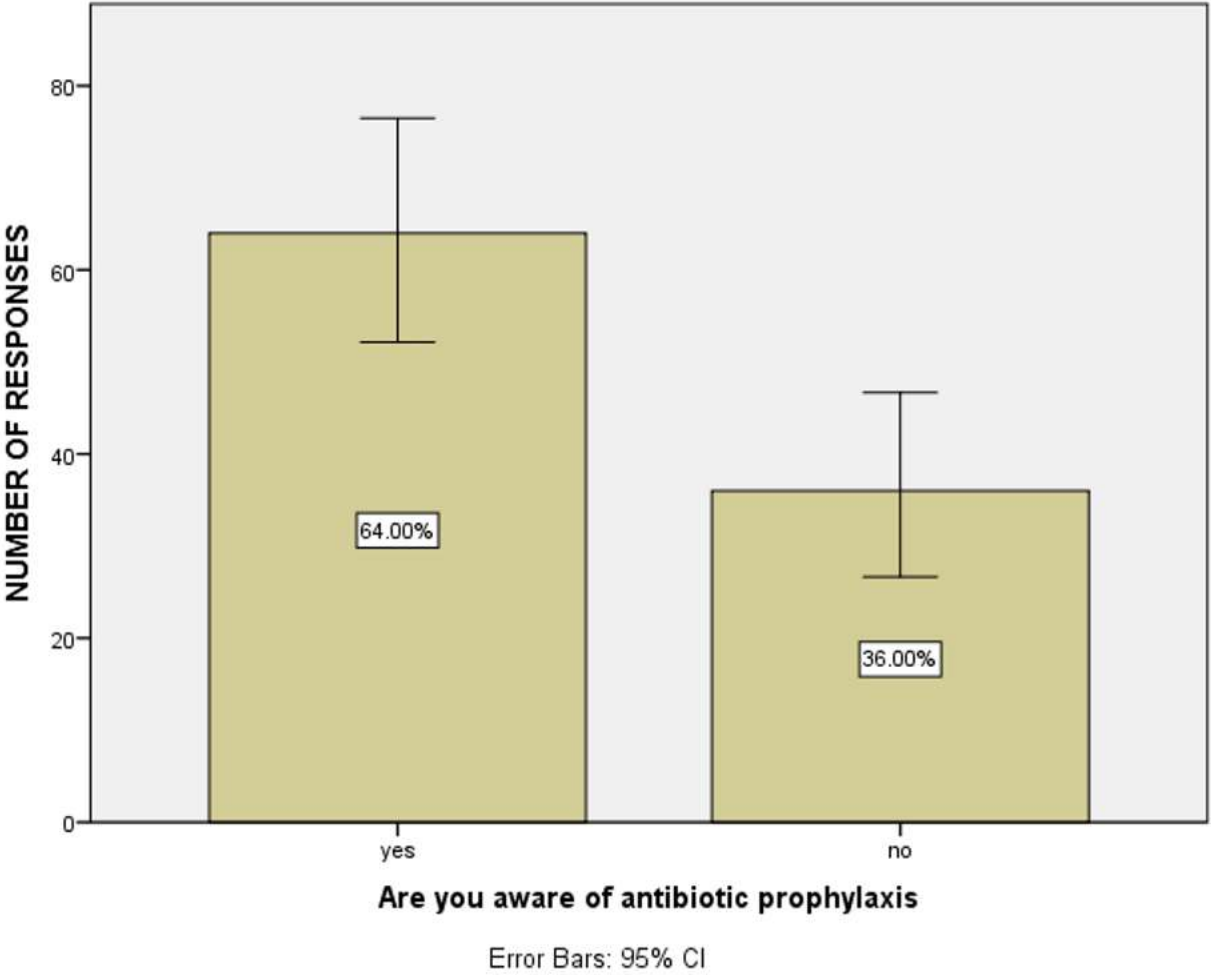


Figure 4-The bar depicts the question “Are you aware of peri operative use of antibiotics in immunocompromised patients ?” Out of which 42% responded yes and 58% responded no.

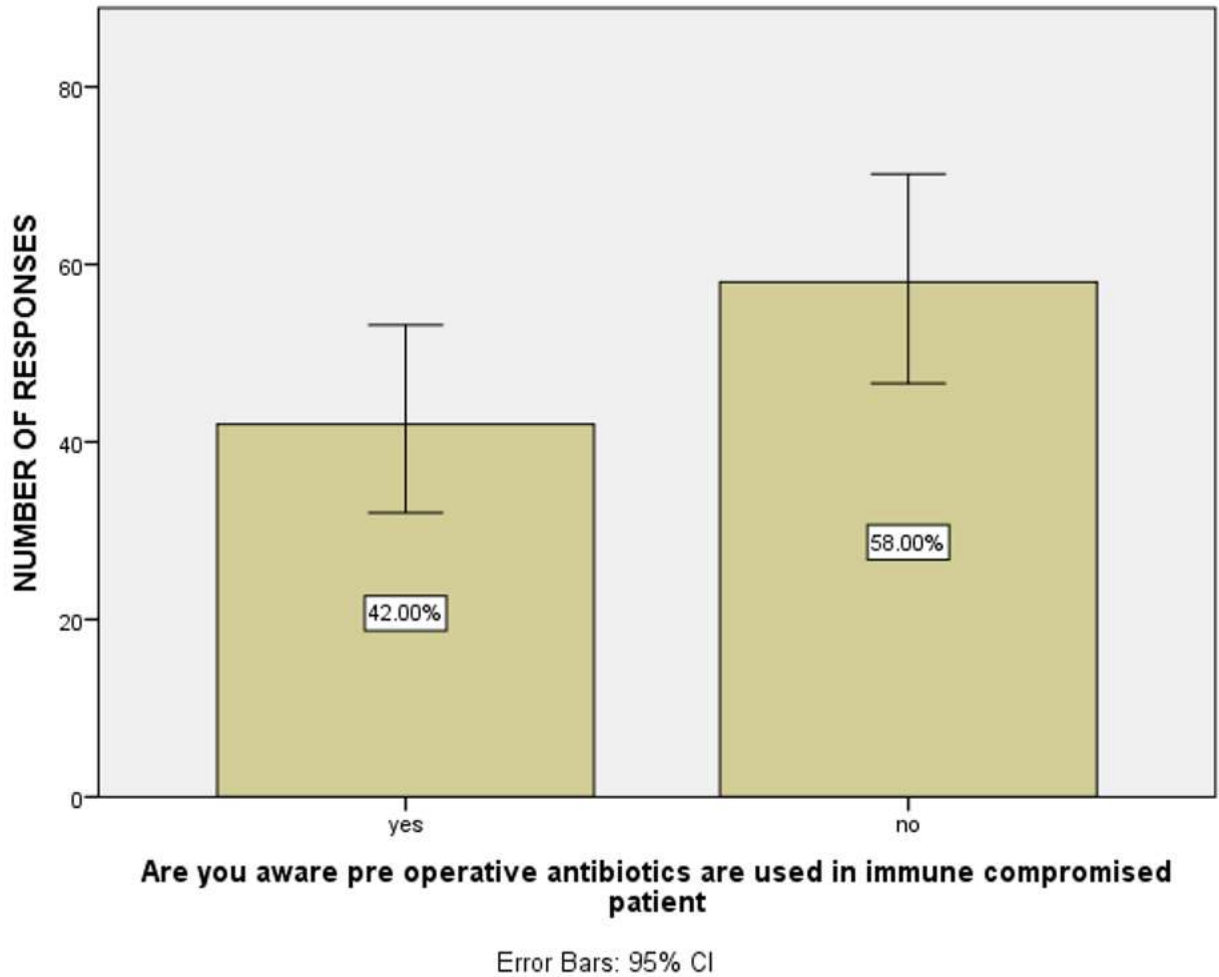


Figure 5- The bar depicts the question “Preoperative antibiotics are given if there is sign of systemic infection ?” Out of which 62% responded yes and 38% responded no.

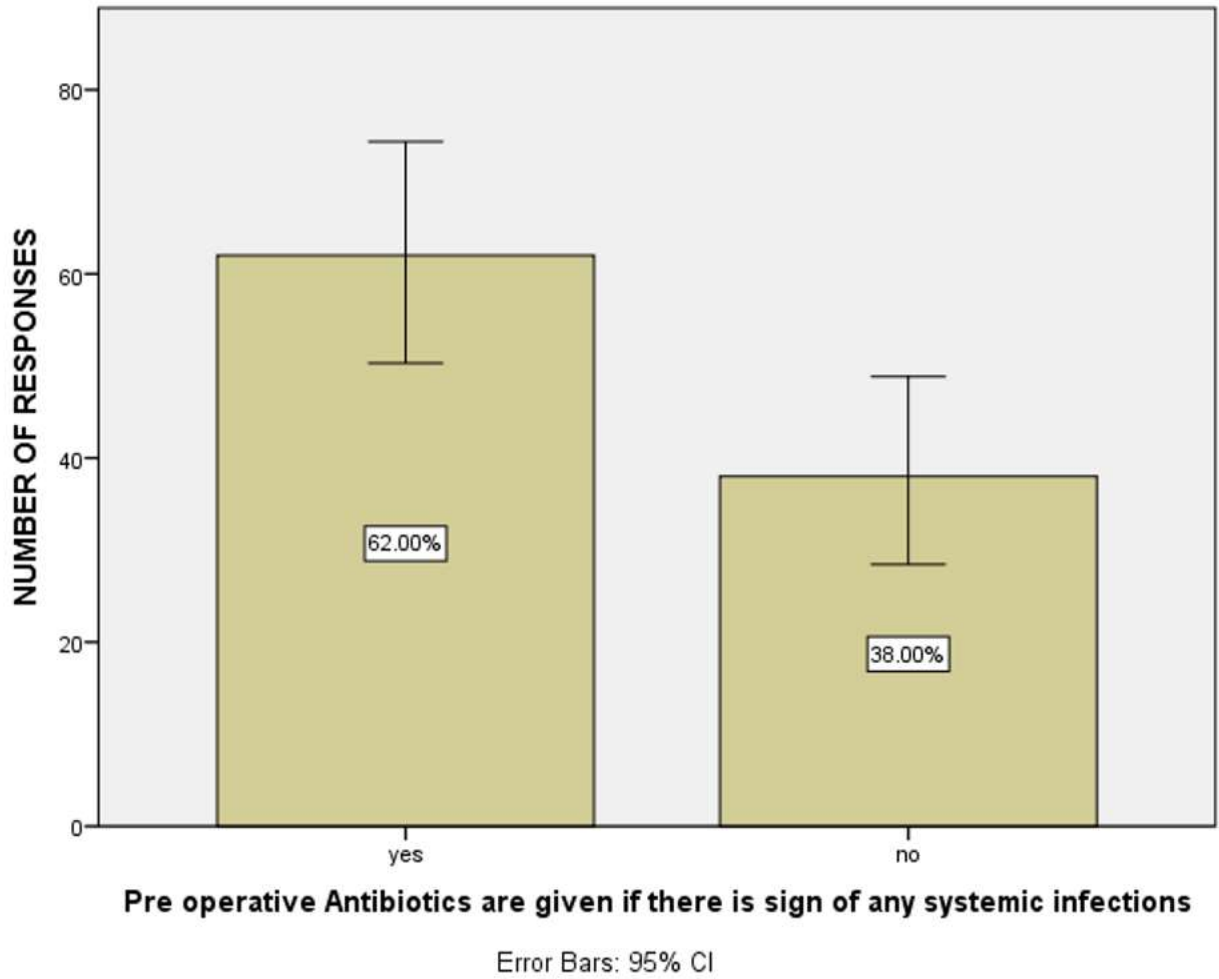


Figure 6-The bar depicts the question “Most common antibiotic prescribed ?” Out of which 62% responded amoxicillin , 21% responded azithromycin and 17% responded cephalixin.

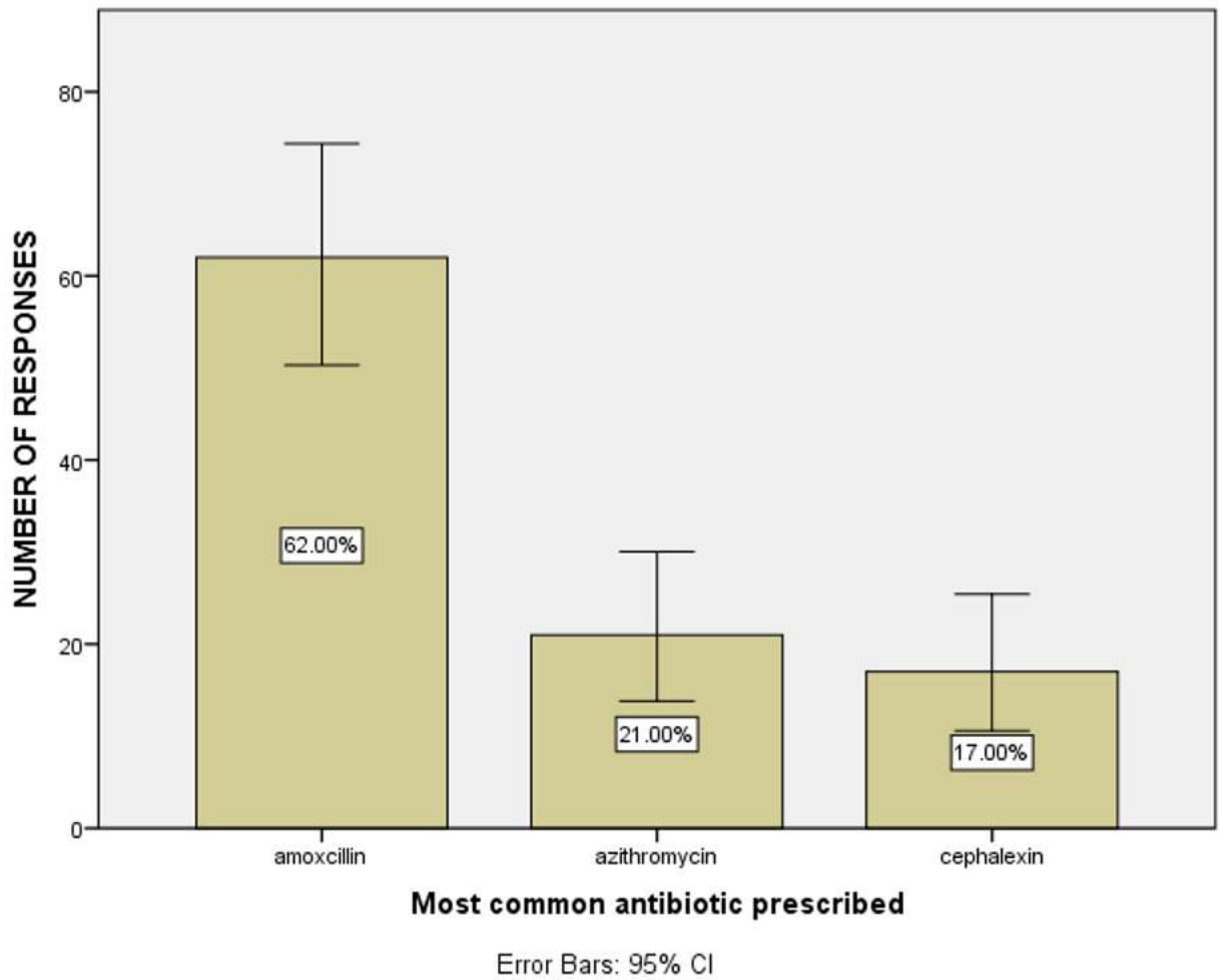


Figure 7-The bar depicts the question “Dosage of antibiotics?” Out of which 78% responded 500mg and 22s% responded 200mg.

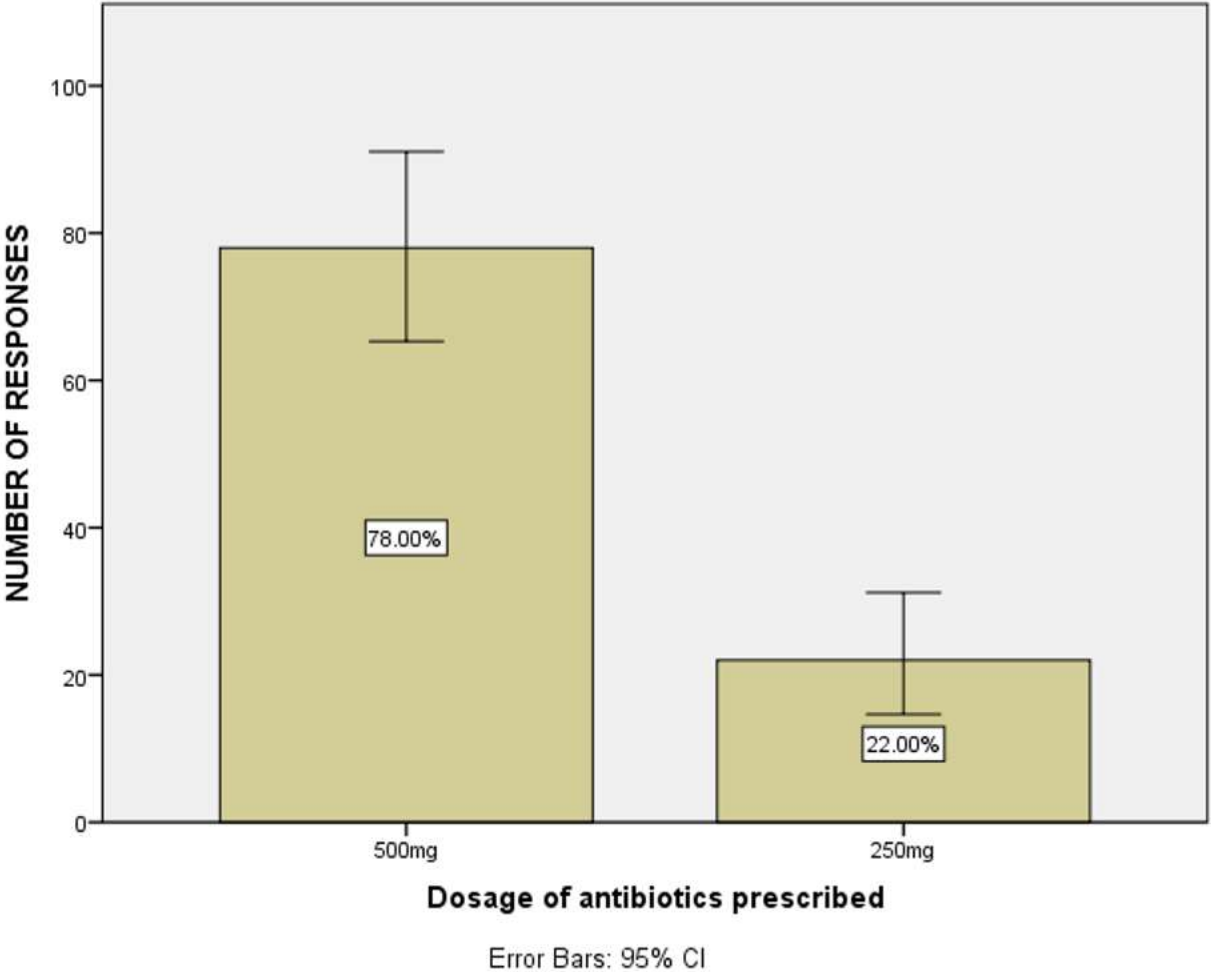


Figure 8-The bar depicts the question “Are you aware of antibiotic prophylaxis for infective endocarditis patients ?”
Out of which 71% responded yes and 29% responded no.

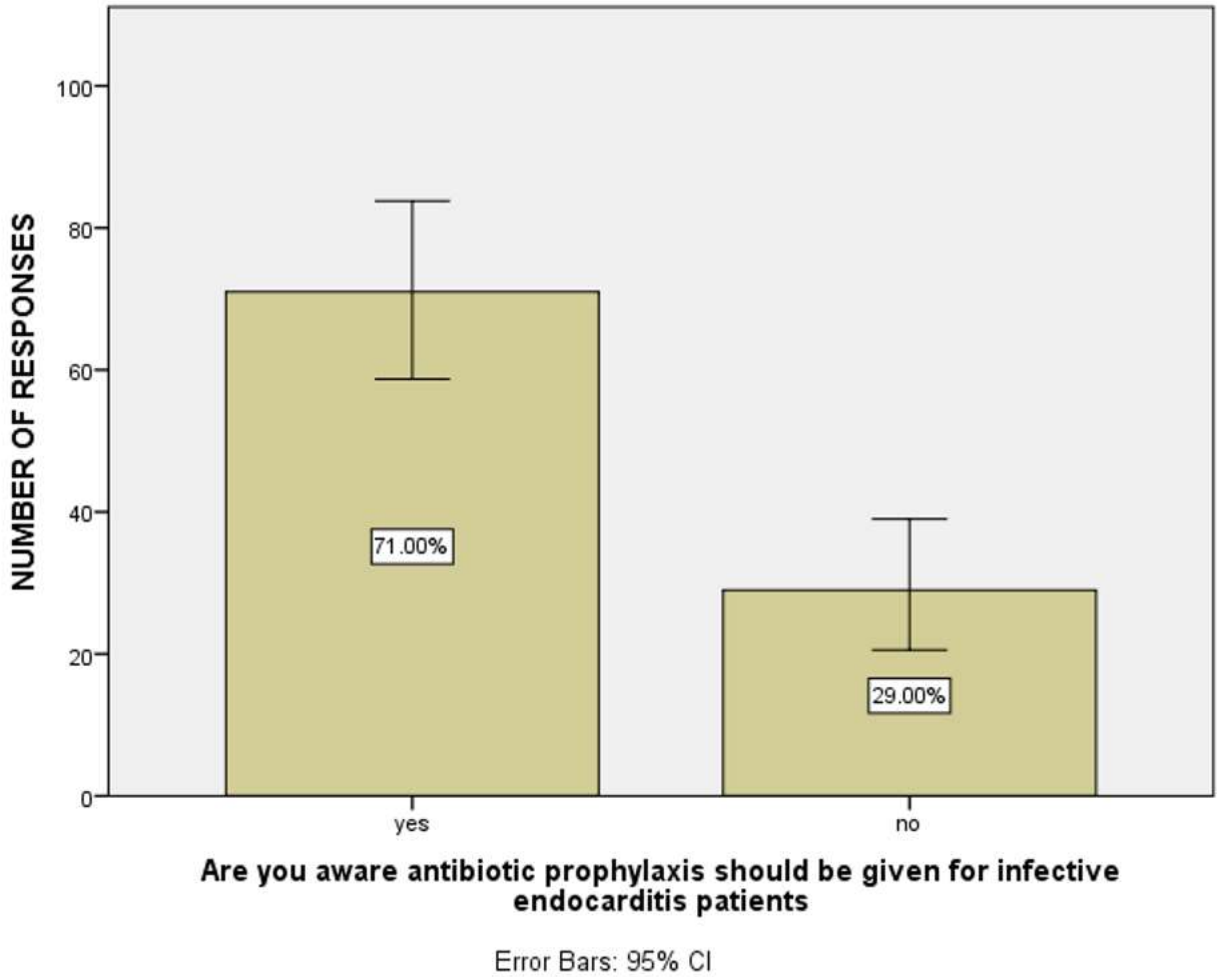


Figure 9-The bar depicts the question “Are you aware of antibiotic prophylaxis for prosthetic leg infection patients ?” Out of which 57% responded yes and 43% responded no.

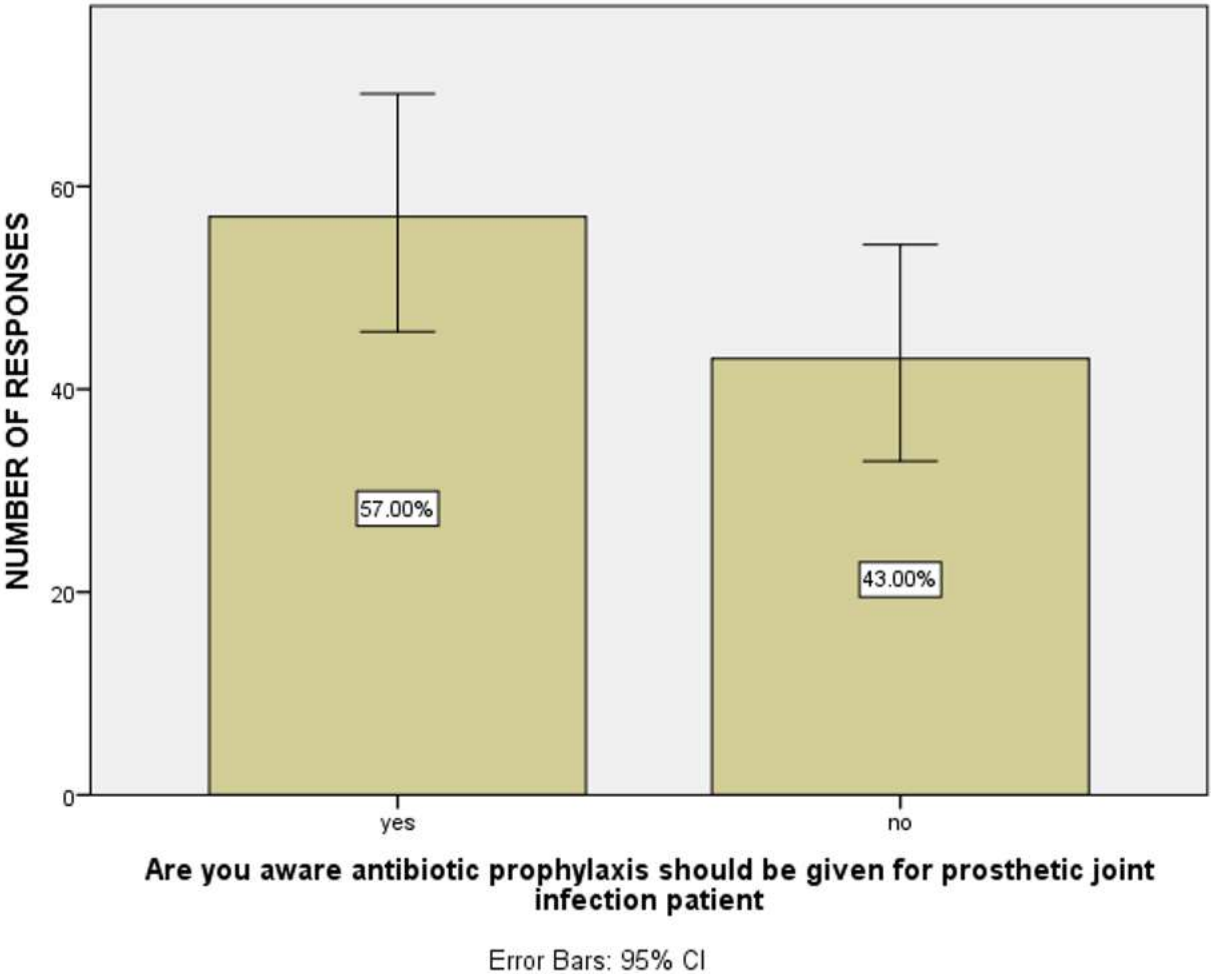


Figure 10-The bar depicts the question “Peri operative antibiotics compulsory for implant placement ?” Out of which 60% responded yes and 40% responded no.

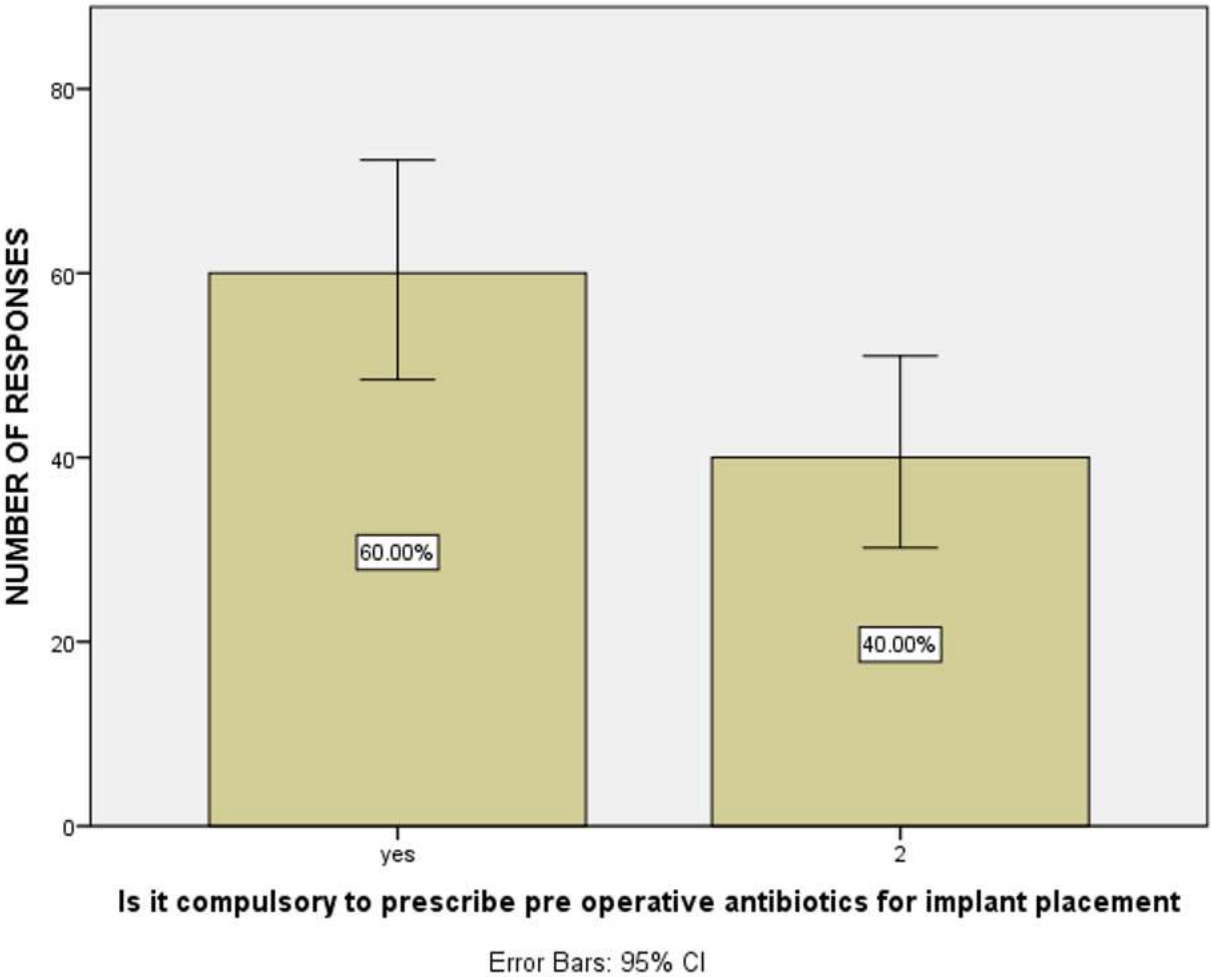


Figure 11-The bar depicts the question “Does all extraction need pre operative antibiotics ?” Out of which 63% responded yes and 37% responded no.

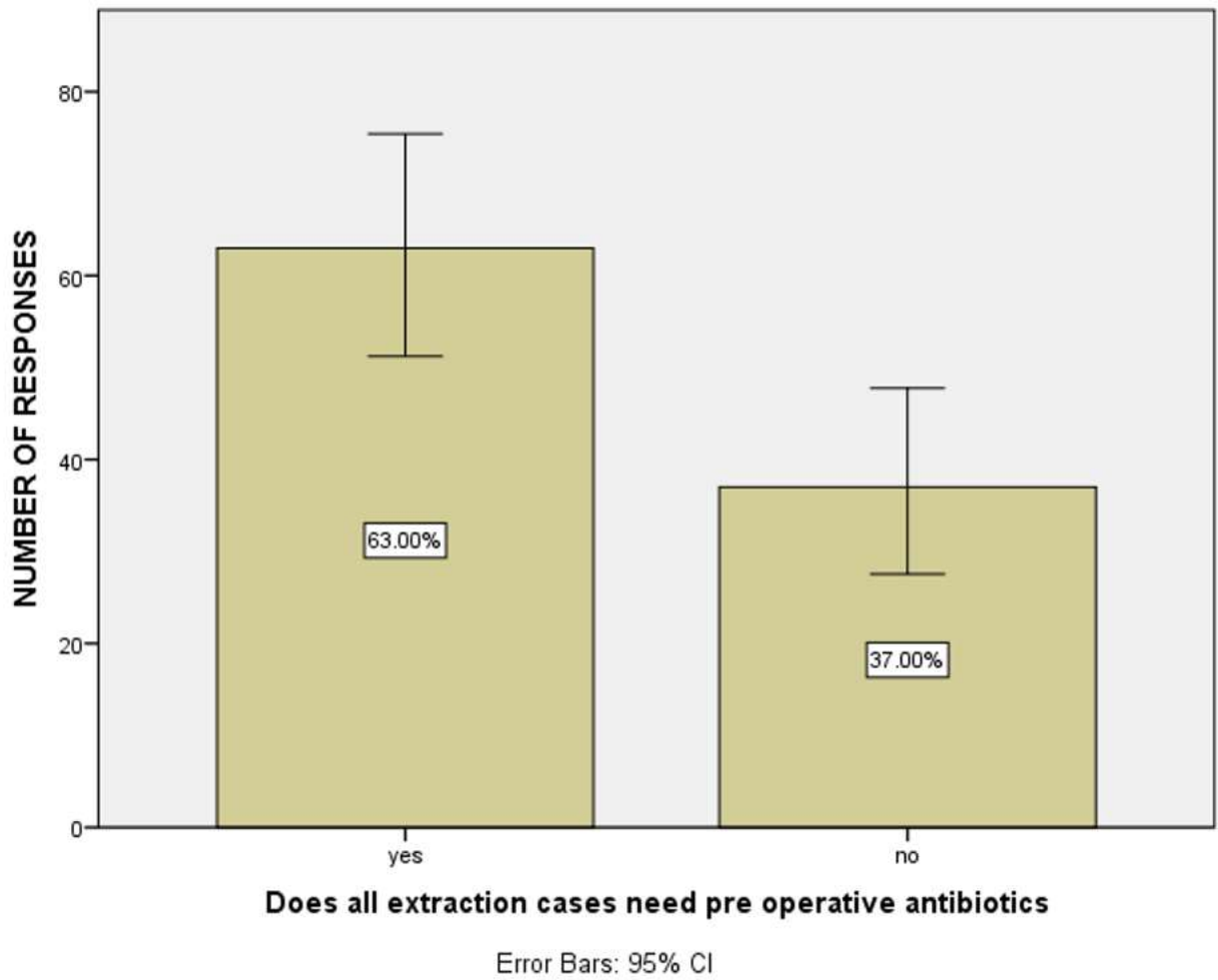


Figure 12-The bar depicts the question “Is there need for antibiotics post extraction ?” Out of which 58% responded yes and 42% responded no.

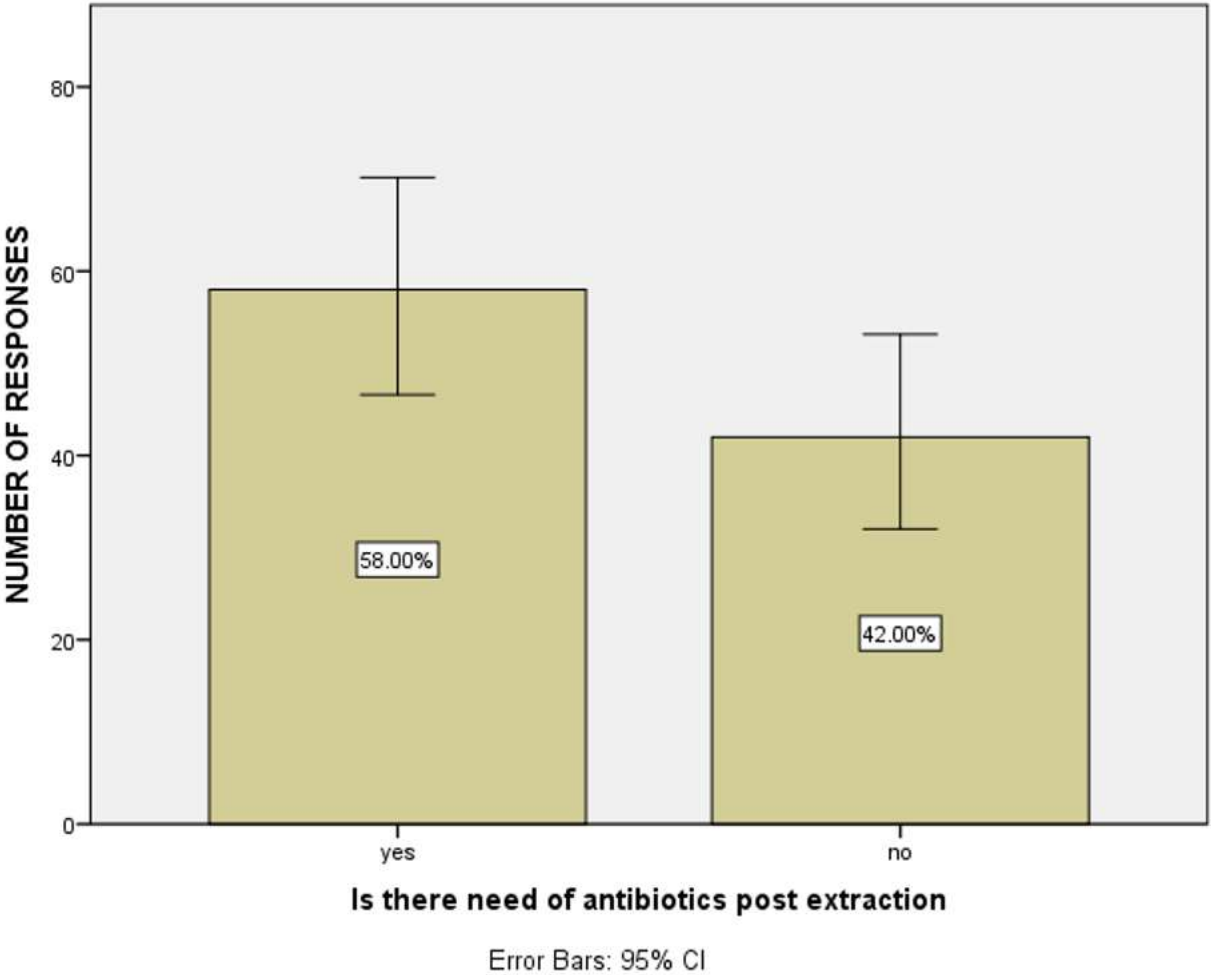


Figure 13-Bar chart showing association between gender and most common antibiotics prescribed . X-axis represents gender and Y-axis represents percentage of responses of participants. 45% males and 17% females responded to amoxicillin (blue) and 8% male and 13% females responded to azithromycin (green). Chi square test showing $p=0.000$ ($p>0.05$ indicating statistically significant).

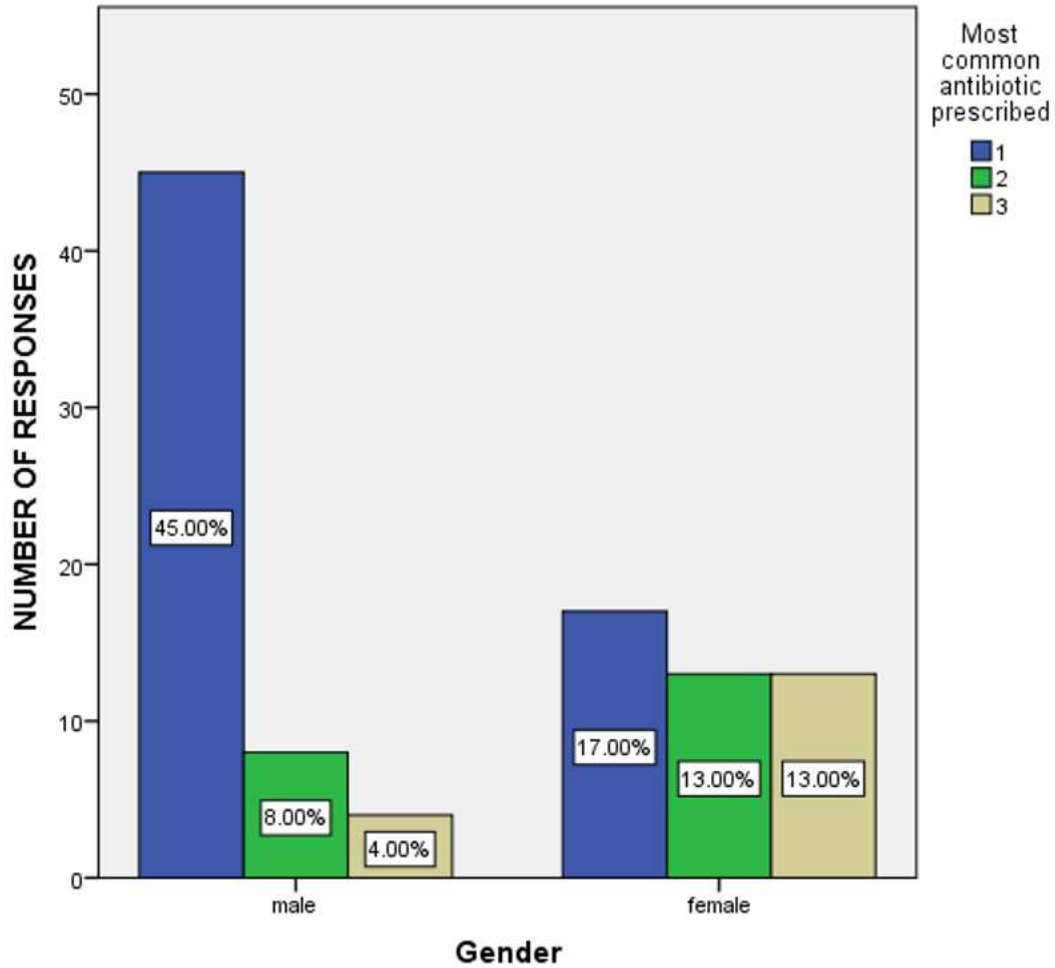


Figure 14-Bar chart showing association between gender and need of antibiotics post extraction . X-axis represents gender and Y-axis represents percentage of responses of participants. 25% males and 33% females responded yes (blue), 32% males and 10% females responded no(green). Chi square test showing $p=0.001$ ($p>0.05$ indicating statistically significant).

