

# GREEN TEA DRINKING HABITS AND AWARENESS AMONG DENTAL STUDENTS

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## ABSTRACT:

Green tea is the most popular drink consumed across the world. It is made from Camellia Sinensis plant. The dried tea leaves are processed and used to produce various types of tea products. Green tea drinking habits have many health benefits. Health professionals like medical and dental students are undergoing high pressure during their Study time. Green tea may benefit them from its Consumption range and knowledge about green tea among dental students is unknown. A questionnaire-based study was conducted. 18 questions were created about green tea drinking habits, about its uses, about its Origin, and its View on green tea. A survey was conducted through online platforms ( Google forms ) and responses were collected. The data Collected were Collected, analyzed and tabulated according to the Values. The knowledge and awareness about health benefits of green tea consumption was adequate among dental students.

**Keywords:** awareness; Dentists ; Green tea; habits; students.

## INTRODUCTION :

Tea is one of the major & most Consumable beverages around the Globe. ( Zhang *e t al.*, 2018) Tea is obtained from the camellia Sinensis plant and it is consumed in different parts of the world as Black tea, Green tea, oolong tea, etc.( Selvan and Ganapathy, 2016) Among all of these, green tea is considered to be having greater health benefits and uses ( Ganapathy *e t al.*, 2016). It is expected that 2.5 million tons of green tea are produced each year throughout the world. Green tea is mainly produced/originated in china( Subasree, Murthykumar and Dhanraj, 2016). After China, many countries like India, America started producing its production. India is exporting about 20% of its production from the 17th Century. The association between green tea consumption and health benefits has long been appreciated to produce green tea. ( Ranganathan, Ganapathy and Jain, 2017) A freshly harvested green tea leaves are Collected and immediately, steamed to prevent fermentation.( Shu *e t al.*, 2003) Steaming gives dry, stable red leaves.( Vijayalakshmi and Ganapathy, 2016) The steaming process also destroys the enzymes responsible for breaking down the Colour pigment. in the leaves and allows the tea to maintain its green Colour After that rolling and drying process is done.( Kannan, Venugopalan and Ganapathy, 2017) In nations where green tea intake is high, cancer rates were found to decrease, but it is impossible to know that because of the green tea

that prevents cancer in these particular populations or other lifestyle factors. (Ashok and Suvitha, 2016) This process preserves natural polyphenols concerning health-promoting Properties (McKay and Blumberg, 2002). Recent human studies tell that green tea may decrease the chance of cardiovascular sickness and some forms of cancer, as well as help in maintaining oral health and different physiological features such as anti-hypertensive effect, obesity control, antiviral, antibacterial activity, sun ultraviolet protection, bone mineral density increase, and neuroprotective energy (Fernández-Cáceres *et al.*, 2001). Green tea composed of amino acids (like glutamic acid, tryptophan, glycine, serine, aspartic acid, glutamate), Protein, carbohydrates (like Sucrose, cellulose, pectin Minerals, and trace elements). (Rietveld and Wiseman, 2003) Due to the presence of mineral elements in it, many studies have Determined the levels and their uses. (Ashok *et al.*, 2014) Health professionals like dental students are having many Stressful issues during their Period of study. A Cup of green tea can reduce their pressure into half. (Zuo, Chen and Deng, 2002)

**Aim of the study:** To know the green tea drinking habits and its awareness among dental students.

## **MATERIALS AND METHODS**

A questionnaire-based study was conducted. 18 questions were created about green tea drinking habits, about its uses, about its Origin, and its View on green tea. A survey was conducted through online platforms (Google forms) and responses were collected. Bias is minimized by 200 Responses were collected from the dental students doing BDS, MDS, Ph.D., MS, and various studies related to dentistry. The analysis of the data is done using IBM SPSS Software and tabulated according to its needs. The data Collected were Collected, analyzed and tabulated according to the Values

## **RESULTS AND DISCUSSION**

The effects of drinking green tea vary for both genders. According to the study, gender differences exert an influence on green tea consumption. According to Figure 1, 51% (blue) of males and 49% (green) of females have responded which will give equal response statistics analysis of both sexes. Figure 2 shows the course of study where 86% (blue) of the participants are BDS pursuing, 9% (green) are MDS pursuing, and 4.5% (sandal) were Ph.D. students were answered in this survey. As this survey studies the sleeping pattern of the dental college students these people answered. Regular Green tea-drinking habit helps a person to lose weight and maintain the BMI in the correct condition and reduce the risk of several diseases like hypertension, diabetes, and heart problems, and cancers. Green tea also helps to delay the deterioration caused by Alzheimer's and Parkinson's diseases. It boosts up the metabolism and helps us to concentrate on our daily activities (Chacko *et al.*, 2010, Basha, Ganapathy and

Venugopalan, 2018)

According to the figure 3, Among 200 students, 66% (blue) of the students have the habit of drinking green tea for its taste and health benefits Figure 4 represents the time in a day when the participant will have green tea. A Cup of green tea in the early morning is a good option for our health. The polyphenols present in green tea prevents cell damage. It refreshes the mind and gives more concentration. Warm water helps the liver, kidneys, and intestines in flushing out the toxins. Green tea acts as a natural stimulant to kickstart the hydration process in the morning. A premium flavored green tea contains a lot of herbal ingredients and antioxidants. The latter helps in reducing unwanted fat and flab, reducing your stress levels, and energizing you.

58% (blue) of the students preferred to drink green tea in the early mornings which will refresh them and a good drink to start the day (fig.4). ( Jyothi *et al.*, 2017) Figure 5 represents the type of green tea the participants consume daily. 61% (sandal) of participants prefer honey and lemon with green tea for their taste and health benefits.( Duraisamy *et al.*, 2019) A cup of green with a teaspoon of honey and lemon in the morning serves many uses and a very good fat burner. Adding a bit of lemon to your teas promotes iron absorption which minimizes the harmful effect of the tannins and catechins stress on the liver due to the presence of vitamin C. Consumption of green tea with honey gives healthy and strong bones, especially in women. Regular consumption of green tea along with Honey strengthens bones and muscles.( Costa, Gouveia and Nóbrega, 2002)

Figure 6 shows the percentage of the consumption of green tea by the participants per day. Consumption of 320 mg of polyphenols per day covers the daily requirements of the antioxidants. 44% (green) of the students drink two cups a day which is quite a normal amount of having green tea per day. Drinking more than 3 cups of green tea per day may cause some problems. It may cause miscarriage in pregnant women. Its caffeine content may cause addiction and lead to the damage of vital organs. ( Kannan and Venugopalan, 2018) Green tea has many side effects also when it is consumed too much. According to the survey study, participants had sleeping problems (57%, sandal), irritability (18%, green), restlessness (8%, blue), skin rashes (2%, violet) (fig.7).

China is the origin of green tea and other types of tea products. It was discovered by a Chinese emperor Shennong who mistakenly drank the water which had dead tea leaves in 2737 B.C. He felt so refreshed after he drank the tea. Then he ordered his soldiers to prepare the tea for him. By the 5th century, tea drinking became a part of ceremonies and till now. 80% (blue) of the students knew that the tea leaves originated from china (fig.8). ( Jain *et al.*, 2018) Figure 9 shows the participants with knowledge about green tea which contains caffeine and L-theanine can enhance alertness and attention. 53% (green) of the students are not aware that green tea contains caffeine which has both good uses and bad side effects. ( Venugopalan *et al.*, 2014) Caffeine increases awareness, alertness, and concentration. More intake of caffeine may cause insomnia, restlessness, and some nerve problems. L- theanine is an amino acid found in tea leaves and some kind of mushrooms. It promotes relaxation without drowsiness. It acts as a powerful stress reliever. It also improves the function of the body's immune system. People with sinusitis found to be slightly recovered with the intake of L-theanine. ( Ajay *et al.*, 2017)

Figure 10 shows the participants with knowledge about green tea which can protect against cavities, gum disease and bad breath According to the study, green tea reduces oral bacteria which promotes the health of teeth and gums and says that people with the habit of drinking green tea regularly are found with less periodontal diseases. ( Chatterjee *et al.*, 2012) Also, green tea is found to be slowing the progression of oral cancer and inhibits cancer growth. It kills microbes that are present in the mouth that makes the mouth stinky and helps us from bad breath. As far as dental students are concerned, 73% (blue) of the students know about its use on the oral cavity (fig.10).

Figure 11 shows the participants with knowledge about the epigallocatechin-3-gallate present in green tea has many anticancer and antioxidant effects Catechins in green tea are powerful antioxidants and free iron

scavengers. It will give a direct antioxidant effect. Epigallocatechin gallate is the most effective cancer chemopreventive polyphenol present in green tea. It reduces LDL cholesterol present in the body. It also has some side effects when consumed too much. It may cause potential liver toxicity, nausea, and sometimes heartburn. 68% (blue) of students know about this (fig.11). According to the study, consuming more than 300mg of caffeine daily may cause many side effects like anxiety, stomach upset, and pregnancy problems in women. According to the study, 1 gram of green tea contains 11-20 mg of caffeine and on average each cup of green tea contains about 22-40 mg caffeine. <sup>24</sup> So having more than 2 cups per day can cause problems. 56% (green) of the students are unaware of this (fig.12).

Figure 13 shows the participants with knowledge about the high dose of green tea may lead to increased bleeding time and have pregnancy risks like neural tube effect. A high dose of green tea can reduce iron levels which may lead to increased bleeding time. It can also promote miscarriage in pregnant women and may cause neural tube effects on the developing embryo. (Ware, RDN and D, 2017) 57% (green) of students weren't aware of the high dose effects of green tea where it may cause pregnancy and neural tube effects. With knowing all the uses and side effects of green tea, 70% (blue) of the students prefer to drink green tea with the knowledge gained through this survey (fig.14). When comparing the green tea drinking habits between males and females, 34% of males and 32% of females have the habit (blue) (fig.15). Comparatively, both males and females are equally consuming green tea. When comparing the amount of green tea consumed by male and female participants per day, males used to prefer drinking 2 cups per day (24%, green) whereas females prefer to drink 2 cups and sometimes 3 cups a day (fig.16). Comparatively, both males and females have almost equally preferred to drink 2 cups per day. When the knowledge about green tea effects and uses on oral health, 38% of males and 35% of females have known about it (fig.17).

Presence of antioxidants in green tea can protect against cavities, gum diseases and bad breath. Comparatively, both males and females have almost equally known about it. When comparing the type of green tea consumed by males and females, 12% of males and 11% of females prefer to drink it with mint and 31% of male and 30% of females prefer to drink it with honey and lemon (fig.18). Both males and females equally prefer to drink green tea with honey and lemon. According to the survey, 65% Of the dental students having the habit of drinking green tea & 75% are aware of its issues.

## **CONCLUSION :**

The knowledge and awareness about health benefits of green tea consumption was adequate among dental students. Green tea drinking habits among dental students is a good one due to its benefits physically and mentally. The major preference of green tea with honey and lemon were the major preferences both among males and female dental students. Future studies will be useful in implementing more proper knowledge about green tea and its issues

## **AUTHOR CONTRIBUTION:**

The authors have carried out the study by collecting data from search engines and drafted the manuscript by necessary information. They have Aided in conception of the topic, have participated in the review, and have supervised in preparation of the manuscript. The authors have participated in the study design and have coordinated in developing the manuscript. All authors have discussed the study details among themselves and contribute to the final manuscript.

**CONFLICT OF INTEREST:** None to declare

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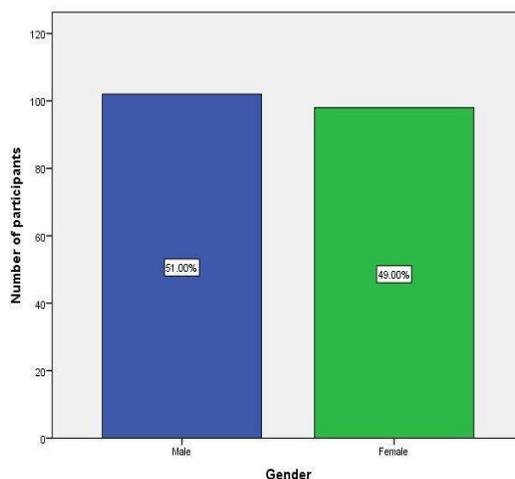


Figure 1. Bar chart shows the gender distribution of all participants. X axis represents gender of participants and Y axis represents the number of responses . 51% of males and 49% of females have responded.

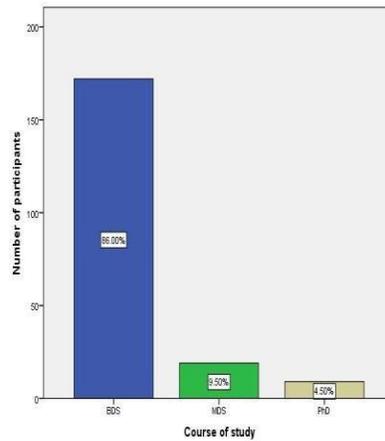


Figure 2. Bar chart shows the percentage of the course of study of participants. X axis represents course of study and Y axis represents the number of responses. 86% (blue) of the participants are BDS pursuing, 9% (green) are MDS pursuing and 4.5% (sandal) were Ph.D. students were answered in this survey.

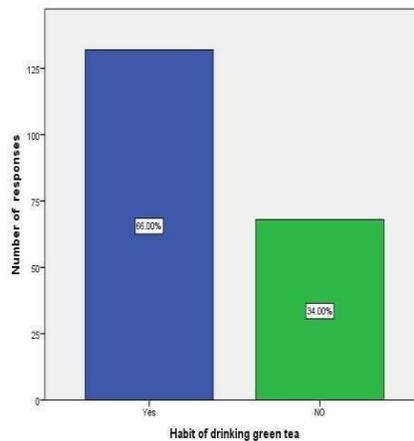


Figure 3. Bar chart shows the percentage of participants with green tea drinking habits. X axis represents the green tea drinking habit of the participants and Y axis represents the number of responses. 66% (blue) have the habit of drinking green tea and 34% (green) do not drink green tea.

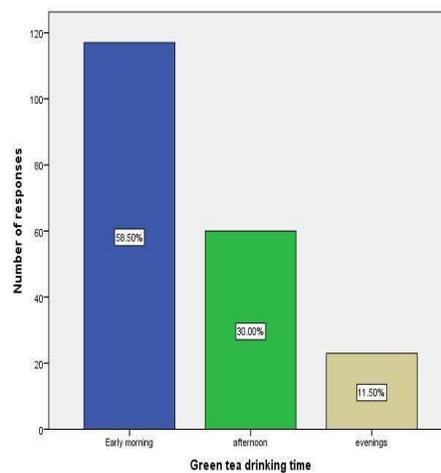


Figure 4. Bar chart represents the time in a day where the participants have their green tea. X axis represents green tea drinking time of the participants and Y axis represents the number of responses. 58% (blue) have it in early mornings, 30% (green) during afternoon and 11% (sandal) during evening time.

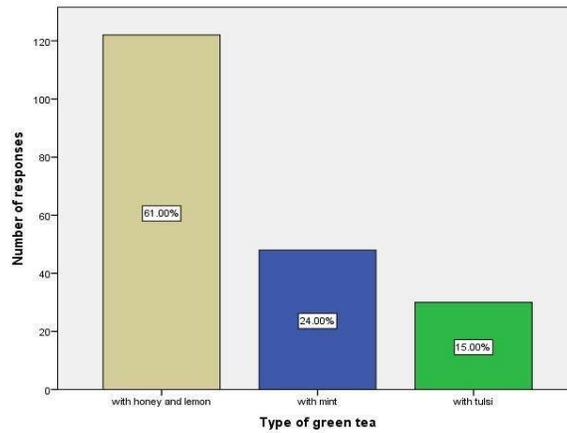


Figure 5. Bar chart represents the type of green tea participants consume daily. X axis represents the type of green tea consumed by the participants and Y axis represents the number of responses. 61% (sandal) have green tea with honey and lemon, 24% (blue) have green tea with mint leaves and 15% (green) have it with tulsi leaves.

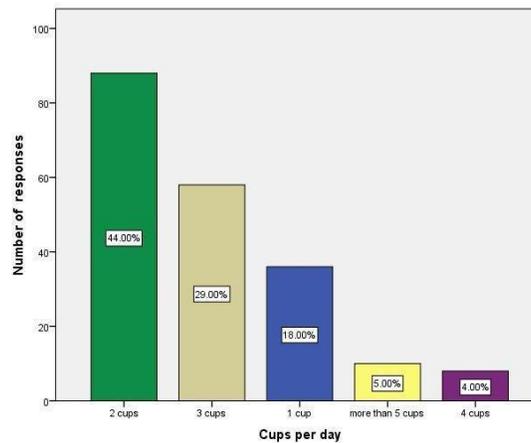


Figure 6. Bar chart shows the percentage of the consumption of green tea by the participants per day. X axis represents green tea cups per day consumed by the participants and Y axis represents the number of responses. 44% (green) of participants have 2 cups per day, 29% (sandal) of participants have 3 cups per day, 18% (blue) of participants have 1 cup per day, 5% (yellow) of the participants have more than 5 cups per day and 4% of participants have 4 cups per day.

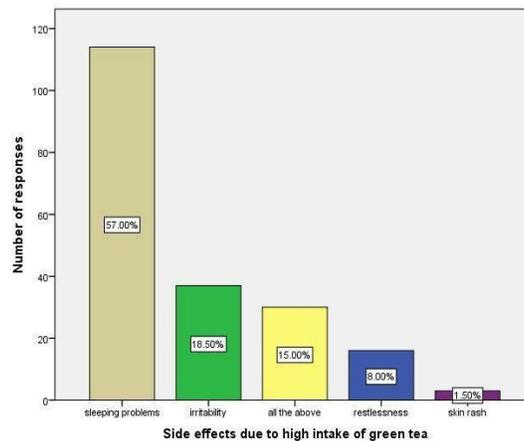


Figure 7. Bar chart showing the percentage of the side effects due to the high intake of green tea. X axis represents problems due to high intake of green tea and Y axis represents the number of responses 57%

(sandal) of participants have sleeping problems, 18% (green) of participants have irritability, 8% (blue) having restlessness, 2% (violet) have skin rashes and 15% (yellow) of participants have all the above-mentioned problems.

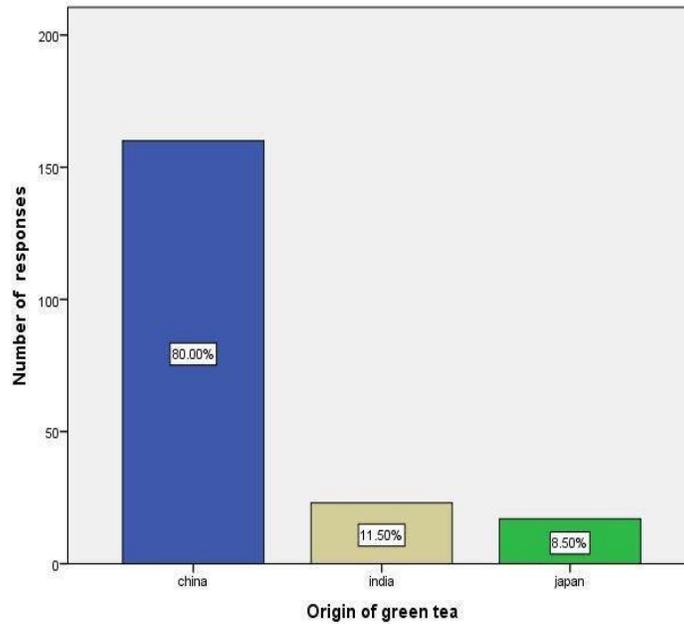


Figure 8. Bar chart shows the percentage of participants with knowledge about green tea origin. X axis represents the origin of green tea and Y axis represents the number of responses 80% (blue) of participants answered china, 11% (sandal) of participants answered india, 8% (green) of participants answered japan.

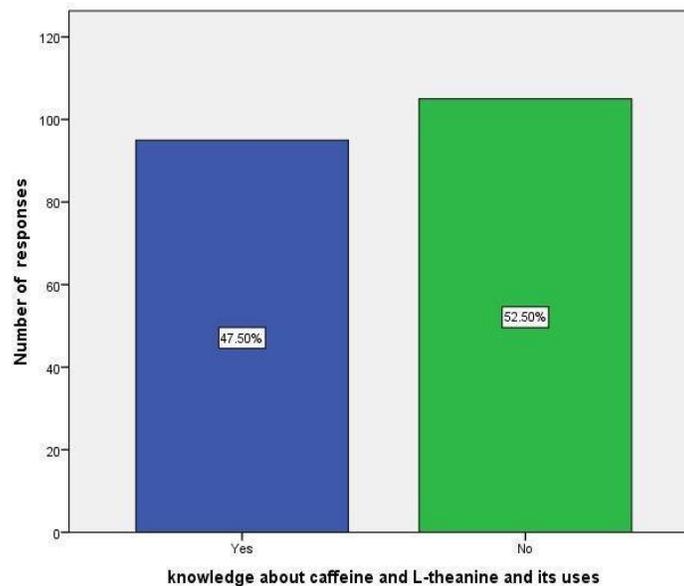


Figure 9. Bar chart shows the percentage of the participants with knowledge about caffeine and L-theanine and its uses which is present in green tea. X axis represents the knowledge about caffeine and L-theanine and its uses and Y axis represents the number of responses. 53% (green) of participants have known about it and 47% (blue) of participants don't know about it.

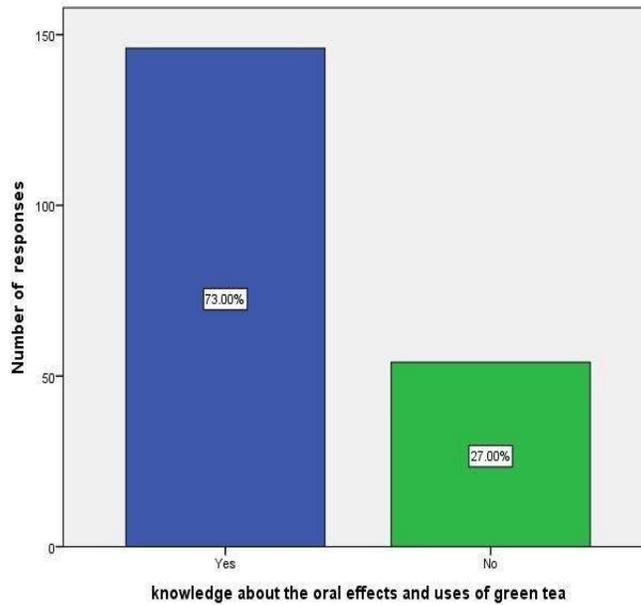


Figure 10. Bar chart showing the percentage of participants with knowledge about the oral effects and uses of green tea. X axis represents the knowledge about the oral effects and uses of green tea and Y axis represents the number of responses 73% (blue) of participants have known about it and 27% (green) of participants don't know about it.

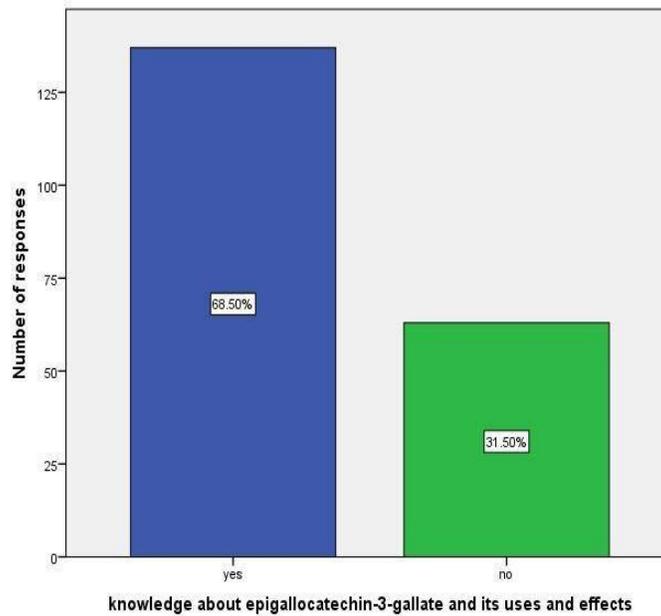


Figure 11. Bar chart showing the percentage of participants with knowledge about epigallocatechin-3-Gallate and its uses and effects which is present in green tea. X axis represents the question 'Do you know that the epigallocatechin-3-gallate in green tea has many anticancer and antioxidant effects?' and Y axis represents the number of responses 68% (blue) of participants have known about it and 32% (green) of participants don't know about it.

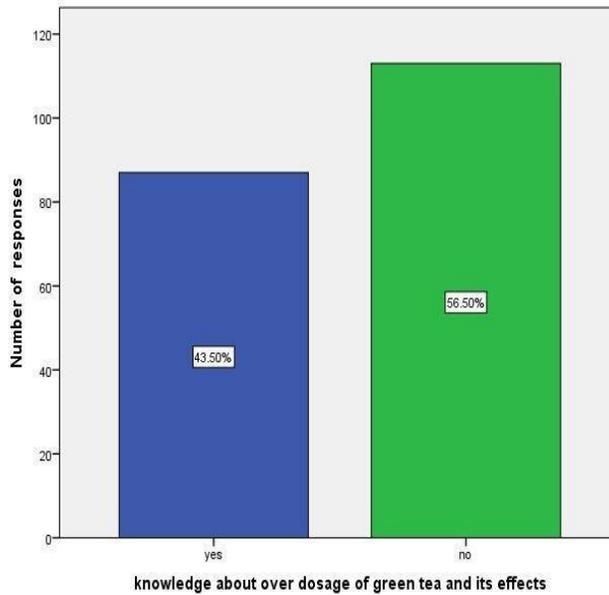


Figure 12. Bar chart showing the percentage of participants with knowledge about over dosage of green tea and its effects. X axis represents knowledge about over dosage of green tea and its effects and Y axis represents the number of responses. 56% (green) have known about it and 44% (blue) of participants don't know about it.

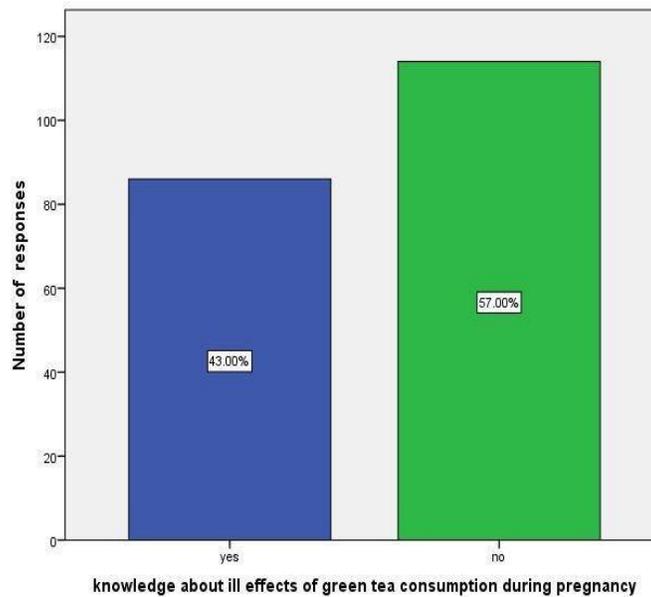


Figure 13. Bar chart showing the percentage of participants with knowledge about ill effects of green tea consumption during pregnancy. X axis represents knowledge about ill effects of green tea consumption during pregnancy and Y axis represents the number of responses 43% (blue) have known about it and 57% (green) of participants don't know about it.

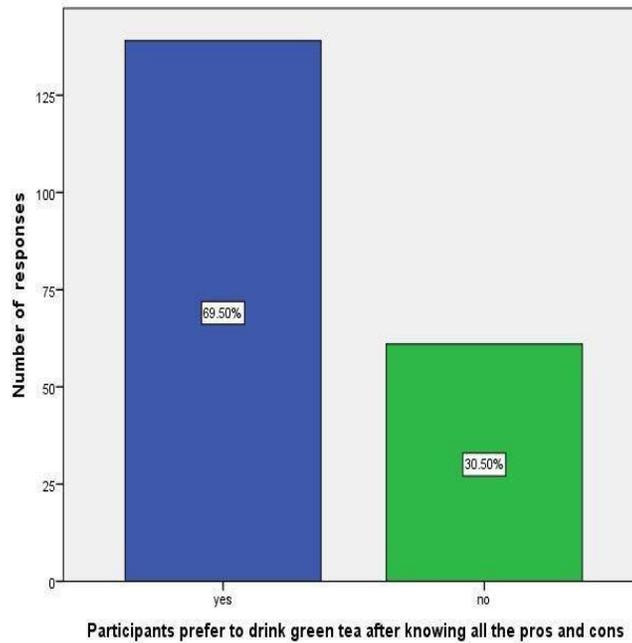


Figure 14. Bar chart showing the percentage of participants who prefer to drink green tea even after knowing the pros and cons of green tea. X axis represents the participants preference to drink green tea after knowing all pros and cons and Y axis represents the number of responses.

70% (blue) of participants agreed to drink and 30% (green) did not agree to drink again.

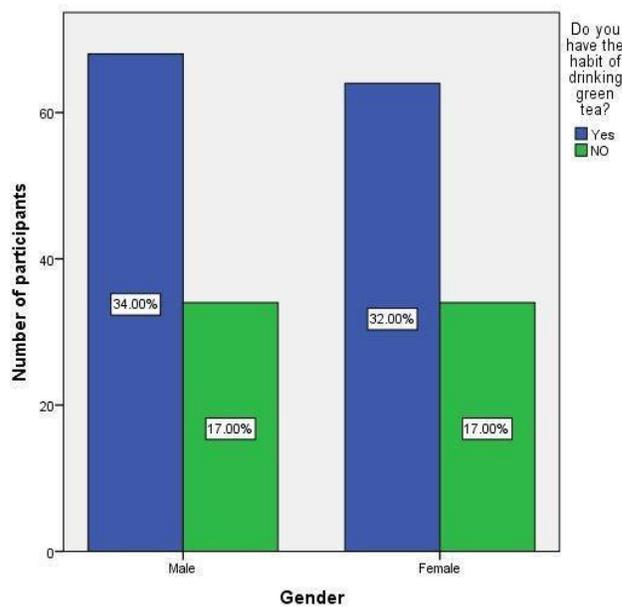


Figure 15. The bar graph represents the association between gender and green tea drinking habits of the participants. The X-axis represents the gender of the participants and the Y-axis represents the number of the participants. Comparatively, the majority of males have the habit of drinking green tea more than females. There is no statistically significant difference between the gender and the green tea drinking habit of the participants.(Pearson Chi-square test ; $P=0.839$  , $P>0.05$ ).

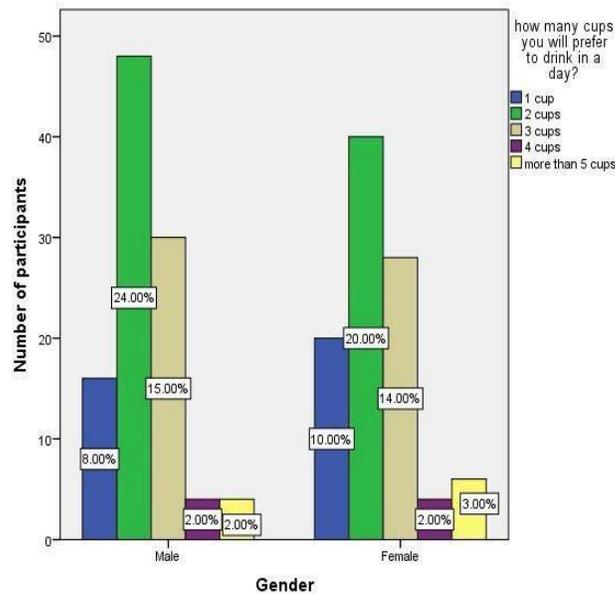


Figure 16: The bar graph represents the association between gender and the amount of green tea consumption per day by the participants. The X-axis represents the gender of the participants and the Y-axis represents the number of the participants. Majority of males appear to consume more green tea compared to the females. There is no statistically significant difference between the gender and the amount green tea consumed by the participants. (Pearson Chi-square test;  $P = 0.816$ ,  $P > 0.05$ ).

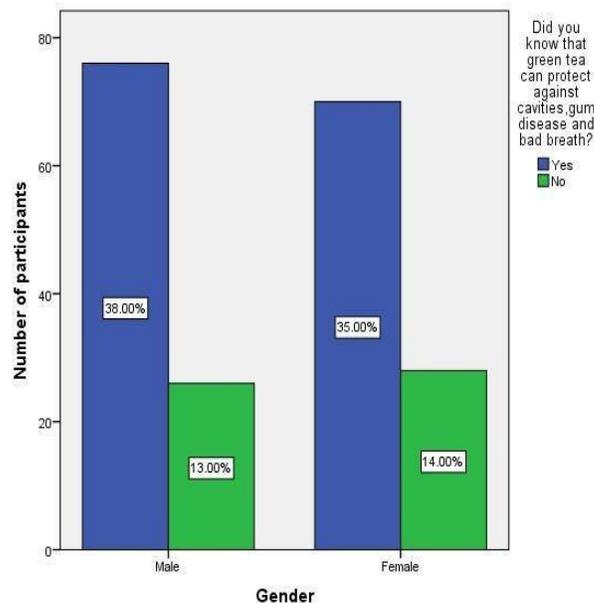


Figure 17: The bar graph represents the association between gender and about the knowledge on the protection of green tea against various gum diseases and bad breath. The X-axis represents the gender of the participants and the Y-axis represents the number of the participants, where Yes (blue) and No (green). The level of knowledge on protection offered by green tea against various gum diseases and bad breath were more in males compared to females. There are no statistically significant differences between gender and green tea protecting various gum disease. (Pearson Chi-square test;  $P = 0.624$ ,  $P > 0.05$ )

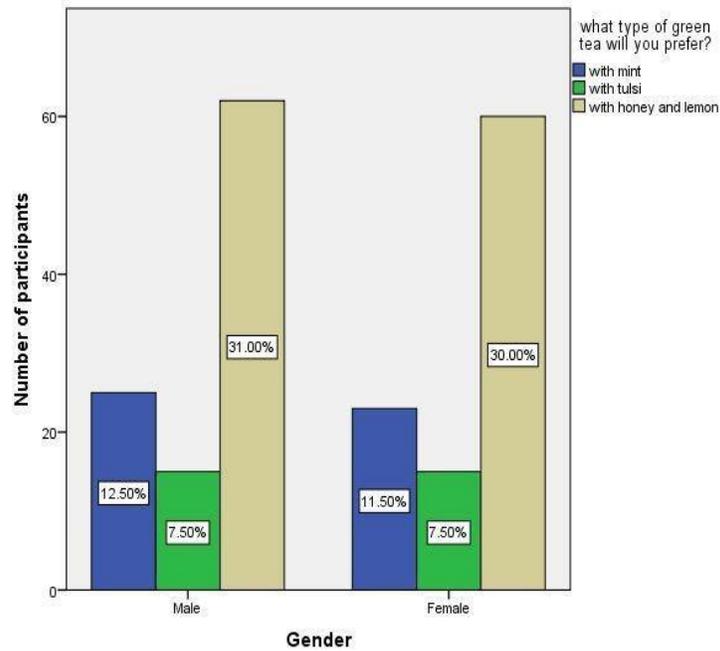


Figure 18: The bar graph represents the association between gender and about the type of green tea they preferred to have daily. The X-axis represents the gender of the participants and the Y-axis represents the number of the participants, green tea with mint (blue), green tea with tulsi (green) and green tea with honey and lemon (sandal). The green tea with honey and lemon were the major preferences among males compared to females, however, there were no statistically significant differences between them. (Pearson Chi-square test;  $P= 0.982, P>0.05$ ).