

## Systematic training of assesement of detox diet among adolescents

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**Running title:** Awareness about detox diet

**Type of study:** Original research study

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### ABSTRACT

**Background:** Obesity is a worldwide epidemic problem due to the unavailability of healthy food options, limited physical exercise. Detox diets are popular dietary strategies that claim to facilitate toxin elimination and weight loss, thus promoting a healthy life ahead of us. A typical detox diet involves a period of fasting, followed by a strict diet of fruit, vegetables, fruit juices, and water. The aim of this study is to assess the knowledge, attitude and practices of detox diets among adolescents.

**Materials and Methods:** The study is designed as a Quantitative, exploratory research approach with cross-sectional survey design used to assess the detox diet awareness level. Self

administrated questionnaire which contains 10 questions. It was circulated through online platforms via google docs. Data was collected and the statistical analysis was done by SPSS software-23. Pearson chi square was used for association with gender and p value less than 0.05 considered statistically significant.

**Results:** Only 8% participants were aware of the fact that the Detox diet has a massive impact on weight loss. Nearly 11% of them were aware that the Detox diet can eliminate toxins from the body, Nearly 1/5(21.37%) of the participants had a clear idea of the Detox diet's fat shedding ability. When compared to females, males were more aware about Detox diet's fat shedding property.

**Conclusion:** The present study revealed that many of them were not aware about the uses of detox diets. Only they were familiar with the detox and not its property. Adolescents should concentrate on their health, not on their physical beauty and they should have awareness of Detox diets.

**Keywords:** Obesity, Toxin, Weight loss, Detox diet, Exercise, Innovative techniques

## **INTRODUCTION:**

During our day to day life, change in the way of life is a steady and unpreventable part of our daily routine. This continuous desire to change to improve our lifestyle is applied not only in indoor activities and also as in technology, fashion, design, construction, and then it also changes foods by reducing the level of nutrients and increasing the level of taste by some mixtures of chemical compounds in it. This drastic change is followed all over the world due to rapid growth of technology and lifestyle which is dependent on those developments. But these developments also lead to a dangerous development of the body i.e., Obesity.

Obesity is an upcoming health concern which has now turned into a pandemic causing fear among citizens. As per WHO in 2016 statistics, more than 1.9 billion adults fall into category of overweight of which 650 million come out as obese(1). This health disaster brings serious health complexities along with it such as Diabetes, Cardiovascular diseases and stroke. One of the main causes for the increased rate of obesity is the lifestyle which has undergone development into a fast, health free life cycle. There is a huge amount of need for unhealthy junk foods and a low required rate of nutritious food materials due to our fast-cycling life.(2)

But many people of this timeline seek only physical beauty like slim, muscular body structure without any hard workouts and avoiding nutritional food supplements due to their dislike of taste(3). These disorders and peoples' thoughts lead to a new way of earning profit for marketers, industrialists by introducing to this world new medicinal formulas, dietary methods to shed fat, reduce obese rate due to people seeking for easy and fast pathways to be slim and also these techniques are easily accessible and just for a short time term, people try once and make a room in their lifestyle for these methods without even knowing the positive and negative impacts of them on the body. Detox Diet is one among these major methods used by people nowadays.

Detoxification or commonly known as Detox Diets are short term dietary interventions which are designed to eliminate toxins from the body(4). The word ‘Detox’ has become a trend among the public in these technologically modified developing lifestyles. Detox diets are in a range involving a period of fasting to a strict diet of fruits, vegetables, and water intake(5). It claims to rest organs, stimulate the liver to get rid of toxins and to improve circulation.

Many pharmacists and physiotherapists commonly recommend Detox diets to their patients for their obesity and diabetes cases. These are largely do-it-yourself programmes aimed at eliminating alleged toxins which can be the cause of headache, bloating, joint pain(6). As per the meta-analysis done by some researchers, it is suggested that lifestyle changes are one of the most effective methods in reducing weight and risks for cardiovascular diseases(7).

Colonic irrigation and fasting carry risk of dehydration, fatigue and dizziness(8). Scientists also focused on quick results on weight loss programmes (9). Toxins which are present in the body are allergens, pesticides, herbicides. These can be removed by prescription drugs which are exogenously produced substances. If these toxins aren’t eliminated from the body, it may cause serious harm. Some research showed that released toxins can depress thyroid function (10). No scientific studies have investigated the effectiveness of the Detox diet for losing weight. Many individuals who are undergoing these Detox diet programmes are having a religious origin which were passed from their ancestors (11).

Our team has extensive knowledge and research experience that has translate into high quality publications(12–16)(16–20)(17–21)

To the best of our knowledge, no rigorous clinical investigations on detox diets have been conducted. Only a handful of studies have been published which too have limitations including small sample sizes, sample bias, qualitative measures. This research is required to find better access to knowledge, attitude and practices of Detox diets among adolescents. The main aim of this survey study is to explore the knowledge, attitude and practices of adolescents on Detox diets.

## **MATERIALS AND METHODS:**

The self administered study was designed based on awareness. The questionnaire was distributed through online Google Forms to 118 adolescents containing 15 questions. The participants were explained about the purpose of study in detail. The questions were carefully studied and the participants were randomly selected, avoiding asking irrelevant questions with their sampling method as simple random sampling. The measures that have been taken to minimise sampling bias are survey software SPSS. The independent and dependent variables of this study are population, gender and adolescents respectively. Internal validity depends on the standard questionnaire values, expert verification. External validity is to cross verification with pre-existing data.

The type of analysis used here is descriptive analysis. Data analysis and collection was done by using SPSS statistics software-23. Descriptive statistics was used to create pie-charts,

cross-tabulation representing each variable. Pearson chi square was used for association with gender and p value less than 0.05 considered statistically significant.

## **RESULT AND DISCUSSION:**

A total of 118 Dental Students participated in this study. Out of these students, 96 are male and the rest 22 are females. 12.71% of the participants don't support detox diet on its toxic elimination property, 11.02% of them support detox diet for the elimination property and rest others with 57.63% responded 'probably' answer and 18.64% responded 'possibly' have unclear knowledge on detox diet's elimination properties. A study conducted by researchers showed that malic acid and citric acid exhibit natural chelating properties, suggesting that they may be useful for the elimination of toxic metals (22). Figure 7 also shows Detox diets' properties and involvement of fasting, fruits and vegetables.

About 25.42% of the students didn't believe that a detox diet makes an impact on weight loss, 39.83% responded 'probably' & 26.27% responded 'possibly' and only 8.47% strongly believe that a detox diet introduces an impact on weight loss. Previous studies revealed the hypothesis that a low-calorie, meal replacement-enhanced detox diet does help individuals lose a significant amount of weight and reduce chronic health symptoms (23). 38.46% of them didn't believe that a detox diet involves a period of fasting, 25.64% believed involvement of fasting period in a detox diet and 35.9% weren't sure (figure 1).

Only 16.1% of people support that they feel energetic after a detox diet, 27.12% of people didn't support it and the rest, 56.78% have half knowledge on it. A University conducted a 7-day program to find the detox diet effect to promote health with precautions. This includes, fruits, vegetables, fasting like a cycle. In the end, participants felt better, more energised and required less medications. 23.08% people think that detox drinks can be healthful and 21.37% people don't think like that.

About 24.79% of people felt that intermittent fasting can burn a few calories and 11.11% of people didn't think like that. Of the rest, nearly 64.1% felt probable and possibly, this indicates they were not sure about (figure 2). Systematic review findings found that intermittent fasting diet was as effective as daily restriction of calories both for short and long-term interventions. They reached a conclusion that the body has its own Detox natural system like skin, immune and lung systems, so there will be no need to have detox diet procedures (24).

Only 12.71% thought drinking a lot of water than required can't remove toxins from the body and 20.34% support that idea blindly and the remaining 66.95% aren't aware of water's ability to remove toxins from the body which contradicts with results in some research reports that there is no effective impact of overtake of water in the process of shedding of fats (25). When asked about expectations of a detox diet that helps to shed fat, only 21.37% supported the thought and 17.95% didn't. 21.37% responded that detox diet can be an addiction and 23.04% oppose the supporters of addiction (Figure 3). By the research on detox diet's addiction on youngsters conducted recently we came to know that for their physical fitness, youngsters use detox diets which later turns them addicted to those diets and fitness which affects both their

physical and mental conditions (26). By comparing the association between genders and impact of detox diet on weight loss, Males had more possibly known about the fact than females and Pearson chi square test shows p value of 0.548 ( $>0.05$ ) (Figure 5) and for comparing impact on detox diet on shedding of fats, the p value is 0.491 ( $<0.05$ ) (Figure 4).

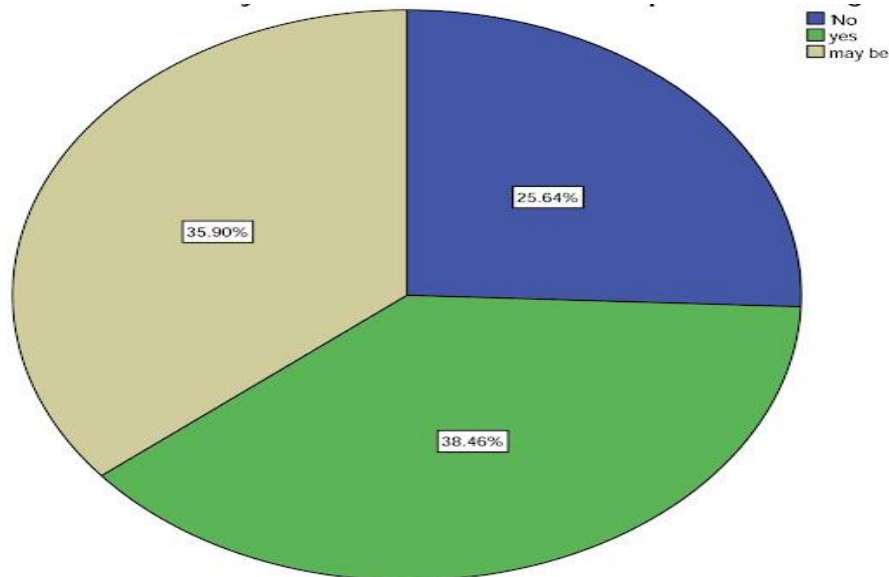


Figure 1: Pie chart showing the percentage distribution of the participants' knowledge on involvement of fasting in detox diet. Blue denotes no, green denotes yes, sandal denotes maybe. Majority of participants (38.46%) responded yes.

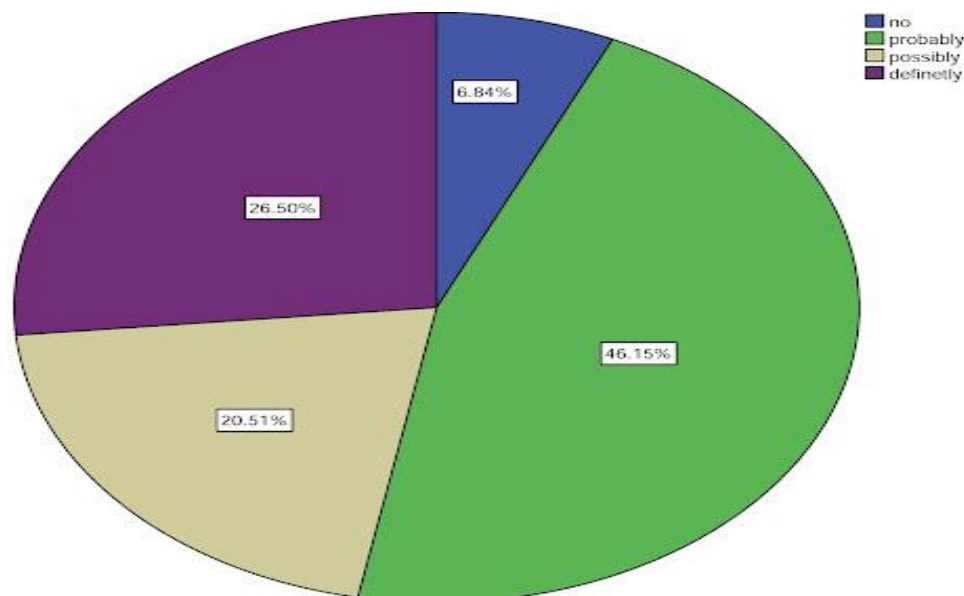


Figure 2: Pie chart showing the percentage distribution of the participants' thoughts on a detox diet contains a diet of fruits, vegetables and water. Blue denotes no, green denotes probably, sandal denotes possibly and purple denotes definitely. Majority of participants (46.15%) responded probably.

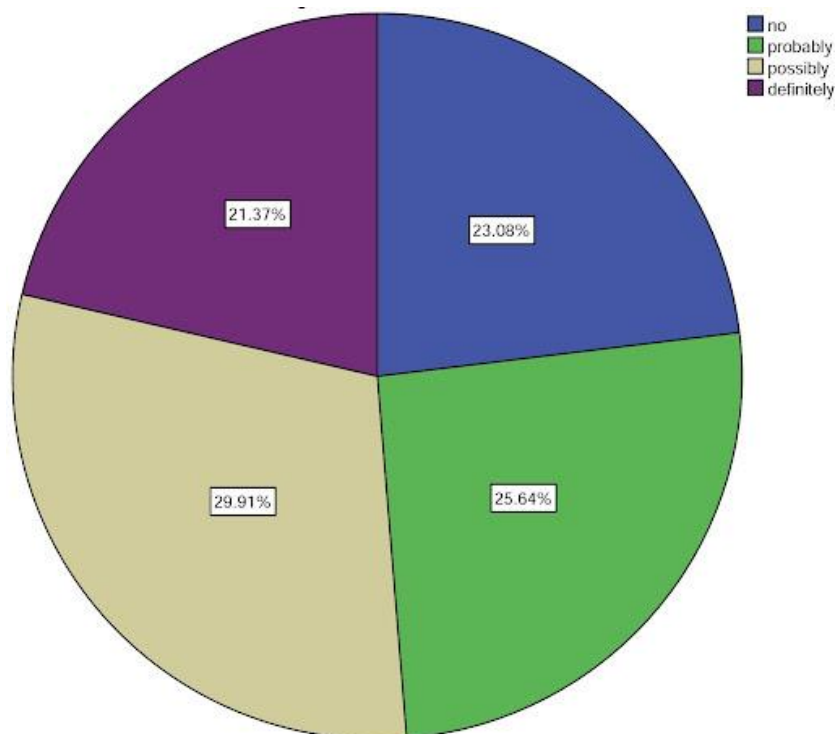


Figure 3: Pie chart showing the percentage distribution of the participants’ knowledge on impact of detox diet on psychological behaviour as addiction. Blue denotes no, green denotes probably, sandal denotes possibly and purple denotes definitely. Majority of participants (39.83%) responded probably.

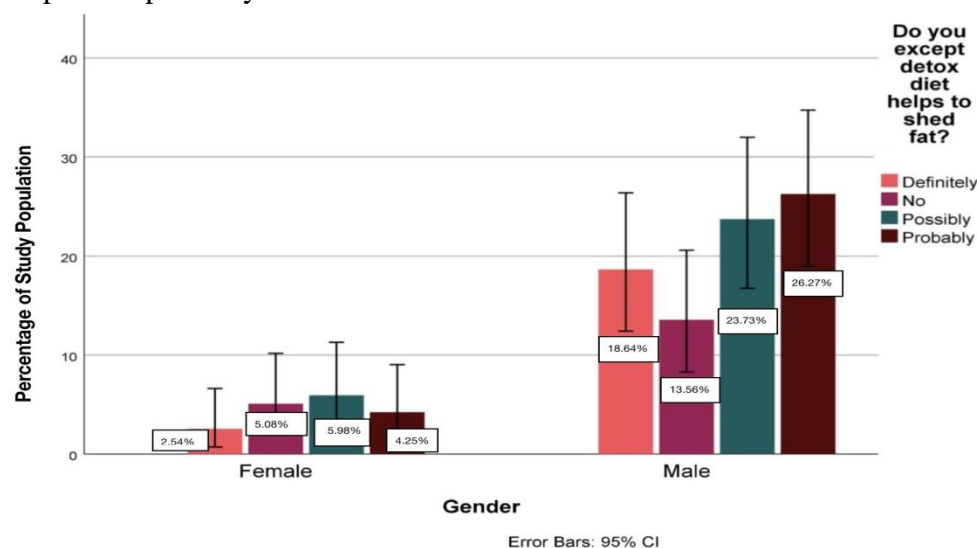


Figure 4: Bar graph showing the association between genders and impact of detox diet on shedding of fats. X axis represents gender and Y axis represents number of responses. Blue denotes no, green denotes probably, sandal denotes possibly and purple denotes definitely. Males had more possibly known about the fact than females. Pearson chi square test shows p value of 0.491 (<0.05).

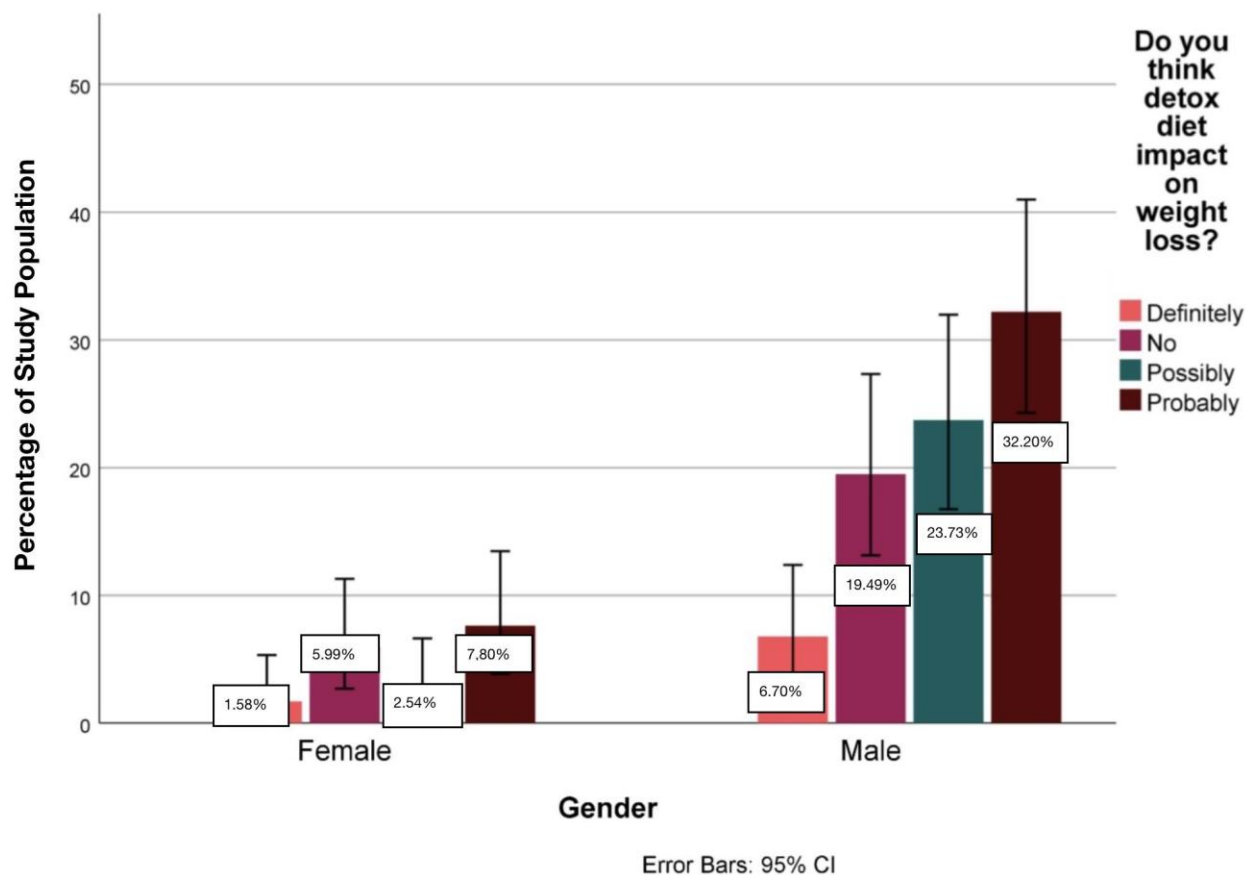


Figure 5: Bar graph showing the association between genders and impact of detox diet on weight loss. X axis represents gender and Y axis represents number of responses. Blue denotes no, green denotes probably, sandal denotes possibly and purple denotes definitely. Males had more possibly known about the fact than females. Pearson chi square test shows p value of 0.548 (>0.05)

**Limitation:**

This study has less sample size and for especially for adolescents, but this research can be done on a wide scale with a larger sample size and with different age groups and populations due to the fact that this study was only conducted among dental practitioners, so that the awareness of obese and Detox diets can be easily spreaded throughout the public.

**Conclusion:**

Although there is scant clinical evidence available to support the use of detox diets, there are anecdotal reports that support them as useful for health promotion and weight loss. This study revealed that the knowledge of adolescents on detox diets is poor. Many responded with either partial knowledge or incomplete facts. This horrible situation should be destroyed in society by spreading awareness to the public. Even though Detox diets can eliminate toxins from

the body in a short term, these are highly imprescribable to adolescents. Detox diets have both positive and negative impacts on the body and the public should know both the impacts before taking hold of the diet plans.

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**Conflict of interest:**

All the authors declare that there was no conflict of interest in the present study

**Author Contributions:**

**Sanjay Varshan M:** Literature search, data collection analysis, manuscript drafting.

**Gayatri Devi. R :** Data Verification, Manuscript drafting

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