



## INFLUENCE OF CARNATIC MUSIC ON FOOD CHOICES, FOOD INTAKE AND DURATION

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**ABSTRACT** Eating habits and patterns are influenced by various factors like environmental and psychological. This study focuses on the influence of Carnatic music on food choices and food intake and quantity. A self developed questionnaire was validated by a subject expert panel. The questionnaire was circulated to 100 individuals residing in Bangalore, 30 subjects were randomly chosen for the cross over study. The study was done in two phases- in complete silence (control) and in presence of Carnatic music (experiment). The findings from the study revealed that 46.6% of the study population made healthier choices and a greater food intake and duration ( $p=0.001$ ) were observed in presence Carnatic music. It can be concluded that Carnatic music does have a role to play in one's food and eating behaviours and patterns.

**KEYWORDS :** Carnatic music, food choices, food intake, food duration

### INTRODUCTION

The three basic needs of human beings are; food, shelter and clothing. Out of the three, food is the most basic need and an important part of our lives. It usually becomes the centre of any social event. In India especially, it is so diverse, yet brings all sorts of people together. It is like a magnet that attracts people irrespective of factors such as age, sex, religion, caste, creed, socio-economic status, geographical area. According to Hamburg *et al.*, (2014), offering food is a means to increase positive affect for the recipient as well as the provider. The amount of food one eats depends on the secretion of certain hormones; ghrelin and leptin by the fundus of the stomach. Certain neurotransmitters like norepinephrine, epinephrine, serotonin, dopamine, leptin and oxytocin are released by the endocrine glands that act together and regulate mood (Karapetsa *et al.*, 2015). It also depends on peptide hormones that are released from the gastrointestinal tract. These hormones send information of the gut to the brain. These peptide hormones are responsible for the regulation of one's appetite and their energy expenditure through the vagus nerve (Sam *et al.*, 2014) but also on many psychological factors. The environment in which the person is eating also plays a role. Surroundings, noise level (soft music or loud noises), lighting, time of meal, climate and temperature, eating in solitary or in presence of people, meal duration, time of meal etc. may have an influence on eating patterns. These environmental and emotional factors cause people to go towards a 'comfort food' that make them feel good (Flaskerud, 2015).

India is a land of culture. There are diverse forms of arts in our country. Music is a branch of fine arts. It is a language of emotions. The origin of Indian music is said to be from Sama Veda which happens to be one of the four great Vedas. Carnatic Classical music originated in the southern region of India. The word 'Karnatakam' can also be split as 'Karna' which means 'ear' and 'Ata' which means 'to haunt', thus, together meaning 'that music which haunts the ear'. There is an ancient method of curing ailments and diseases called 'Raga Chikitsa' which involves curing certain conditions through ragams. It can also be termed as Music Therapy. Music therapy improves all the domains of one's mind and body, such as, emotional, psychological and physical and brings about complete balance. This long lost science of curing health conditions without medications is coming back into light in the recent years.

### AIM

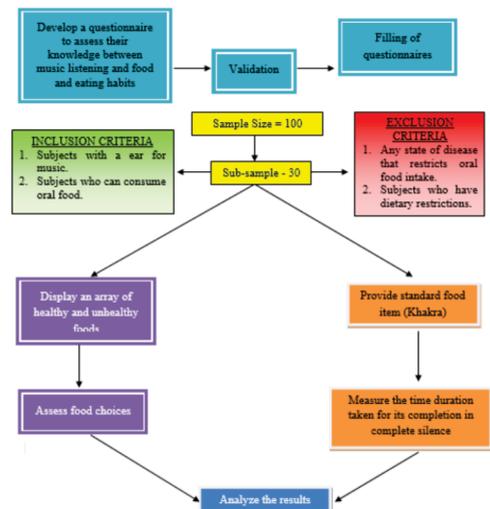
The study was undertaken with a broad objective to study the influence and effect of music on food choices and food intake and quantity.

### OBJECTIVES

1. To assess the subjects' food choices in presence of music.
2. To identify the subjects' food intake and duration of eating in presence of music.

### METHODOLOGY

#### PHASE I- (Control-Silence)



In Phase II, the experiments were conducted in the same way as in the first phase but in presence of Carnatic music.

### RESEARCH DESIGN

Cross-over research design- The subjects received 2 treatments; control (silence) and experiment (presence of music).

### STUDY DESIGN AND STUDY AREA

The study was done in Bangalore city. Bangalore is situated in the Southern part of India. It is a metropolitan, cosmopolitan and the capital city of Karnataka

### SELECTION OF SUBJECTS

#### TYPE OF SAMPLING AND SAMPLE SIZE

Random sampling technique was employed.

N = 100

Sub sample- 30 for further study

### STUDY TOOLS

A VALIDATED SELF DEVELOPED QUESTIONNAIRE- A questionnaire was developed and validated using 7 subject experts in various fields such as Carnatic music gurus, Human Development professors and music therapists. The questionnaire consisted of four components; general information, music, food, food and music. The questionnaire was validated using Lawshe's Content Validity Ratio formula.

CARNATIC MUSIC TRACKS- Music tracks as preferred by each

subject were made based upon their answers in the questionnaire and played especially for them

**STANDARD FOOD ITEMS FOR DISPLAY**

1. Food Choices- An array of foods such as idly, salad, chocolate, plain cake and chips were displayed.
2. Food intake and Duration- Khakra

**DATA COLLECTION**

1. The self developed, validated survey questionnaire was circulated through Google forms to the subjects who fulfilled the inclusion criteria as mentioned.
2. The forms were sent to individuals of both genders between the ages 15-75 years.
3. Out of the 100 subjects, 30 subjects who gave their consent were chosen for the experiment.

**PHASE I**

**FOOD CHOICES**

1. The subjects were seated in a quiet room during the entire experiment in Phase I.
2. The subjects were displayed the array of foods in front of them.
3. They were instructed to rank the foods according to their feeling of wanting to eat on a 5-point Likert scale.

**FOOD INTAKE AND DURATION**

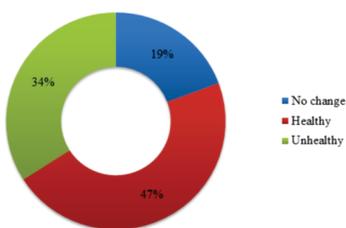
1. The subjects were blindfolded and seated in complete silence.
2. They were given a standardized food item (Khakra) along with a glass of water.
3. They were instructed to eat at whatever pace they were comfortable with and how much ever they felt like eating.
4. The total time taken and weight of food consumed were recorded.

**PHASE II**

The above experiments were conducted in the same manner as above in Phase II in presence of Carnatic Music.

**RESULTS AND DISCUSSION**

**FOOD CHOICES**



**Fig. 1 - FOOD CHOICES MADE IN PRESENCE OF MUSIC**

It was observed that 13.3% of the subjects ranked idly in the first place during the control and experiment exposures, 56.6% of them made healthier choices (salad) in presence of music (p=0.03) and 30% of them made unhealthier choices (chips or chocolate or plain cake). This was the only food item that saw a significant change over the two exposures. These results are in tune with the findings of Biswas, Lund & Szocs, 2018 where the subjects made healthier food choices such as salads, low calorie white meat, vegetable wraps or sandwiches instead of cakes, chocolates, red meat wraps or sandwiches, coffee and tea in presence of low ambient music (p<0.05).

**FOOD INTAKE AND DURATION**

**Table 1- FOOD INTAKE AND DURATION**

	CONTROL	EXPERIMENT	Mean Difference	p value
	Mean ± SD			
AMOUNT	11.53±2.30	29.23±8.19	17.7	0.001
DURATION	88.14±0.28	257.44±85.44		

Significance level <1%

The table depicts the difference in the amount and duration of food intake in the absence and in presence of music, which was statistically significant (p=0.001). Music brings positive outcome with respect to the quantity and meal duration. The results of this study are in tune with Stroebele & de Castro (2006) and Novak., La Lopa, Novak (2010).

**SUMMARY AND CONCLUSION**

**DEMOGRAPHICS**

The study sample predominantly was females (72.2%), vegetarians (72.3%) and those who belonged to the middle income group according to the socio-economic classification given by Kuppuswamy (2018).

**MUSIC**

Music was used by 87.1% as a coping mechanism during emotional times. The most common times were found to be happiness, sadness and loneliness

**MEAL PATTERN**

It was observed that 54.5% of the population skipped meals and 9.9% over ate in such cases. The most common cause for skipping meals was observed to be the feeling of not willing to eat, followed by lack of time and then stress. Untimely meals or skipping meals may lead to food cravings which were seen to be the case in 9.9% of the population. Tiffin items were found to be the most craved food items (43%) and 30.7% for fruits and vegetable salads. Surprisingly, only 11% was found to have a craving for packaged food items.

**RELATION BETWEEN FOOD AND MUSIC**

It was observed that 84.2% of the population believed that there exists a link between music and food consumption. The connection between music and food consumption was affirmed by 71.3%. It was also noted in 92.1% of the population that mood has an effect on the food consumption. Contradicting to the above statement, 75.2% of the subjects did not eat in presence of music. The maxim of a connection between listening to music and eating was opined by 72.3% of the study sample. A large percentage of 46.5% felt unsure about eating better in presence of music. 28.7% were sure of better eating in presence of music, 38% of the population opined that music helped them calm their minds during meal times which lead to a better food consumption. 82% of the study population agreed to the connection that lies between food consumption and pitch, volume and bhāva of the song or music piece.

**FOOD CHOICES**

It was documented that 46.6% of the subjects made healthier food choices in presence of Carnatic music rather than in the absence of music. The most significant change was observed in that of idly, where 13.3% of the subjects chose idly in both the exposures and 56.6% (p=0.03) of them opted for salad in the presence of music instead of chips, chocolate or plain cake.

**FOOD INTAKE AND DURATION**

In presence of Carnatic music, it was observed that the subjects consumed a greater amount of food and also took a longer time for the consumption in comparison to that during silence (p=0.001).

To conclude, environmental factors and psychological factors have an impact on one's eating with respect to choice of food, the duration and quantity and the perception of flavor of food. Music is one such environmental factor that influences one's psychological aspect (mind). Music is related to one's mood and emotions; mood in turn plays an important role in one's eating. Music can induce better eating. Music can be used as a tool to inculcate good eating habits.

The study thus concludes that in presence of Carnatic music, healthier food choices are made. The study also suggested longer meal durations and greater quantities are consumed. This can be employed in conditions where individuals need greater calories.

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