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Impact Analysis of ICT based Educational Intervention on Change in Consumption of Junk Food Among School Going Children in Jaipur: A Vis a Vis Study

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Abstract: ***Introduction and Objectives of Research Study: World data revealed the facts that twenty-first-century school-going children are more inclined towards the consumption of junk food especially during the COVID 19 pandemic period and this habit of consuming junk food is recognized as a serious health problem around the globe. Thus in this backdrop, the present research framework aims to assess the effectiveness of an ICT based educational intervention program for school going children in Jaipur Metropolitan City, India to reduce junk food consumption habits. Research Methodology: In the present research study data was collected with the help of a simple random sampling technique from n=200, school-going children of study area Jaipur. Primary data collection tool- a self-developed structured questionnaire was used in the present study. Data was collected in a phased manner i.e. Pre-test before intervention study and post-test after the ICT based interactive study. For statistical analysis, a multiple linear regression model and a paired t-test were used to assess the effectiveness of ICT based educational intervention programs in the present research study. Findings and Conclusion: Findings obtained from the present study concluded that among school children of Jaipur the behavioural intention of junk food consumption was different in pretest and posttest [4.98 ± 1.6 and 6.84 ± 1.2]. The present research study concludes that the ICT based intervention program developed by the research scholar has been proved as an effective education program for changing the intentions of school-going children and also prevent them from making the habit of consuming junk food which was found statistically significant at the p-value <0.05. It was also found from the study that, the behavioural intention of junk food consumption, the attitude of school-going children towards junk food consumption, and perceived behavioural control toward junk food were statistically significant as the obtained p-value was <0.05. Implications of the study: In a nutshell, it can be postulated from the present research study that ICT based intervention program has a significant positive influence on the perceived behaviour without a control group of school-going children in the study area Jaipur and the same findings can be used unanimously in other study conditions around the globe.***

Keywords: ICT, Intervention, Junk Foods, Obesity, School, Jaipur, SPSS.

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I. INTRODUCTION

In general terms, food is usually fast food that contains low fibre and nutrients but high fat, saturated fat, sodium are known as Junk food. ***(Boylan S. et. al., 2017)***. Varied researchers around the globe have scientifically claimed that these junk food have negative or ill effects on the overall nutritional status, health and cognitive development of school-going children. ***(Nazari A. et. al., 2016 and Sahoo K., et.al., 2015)*** World data revealed the fact that twenty-first-century school-going children are more inclined towards the consumption of junk food especially during the COVID 19 pandemic period. ***(Niemeier H. M. et. al., 2006 and Nixon H et. al. 2011)*** Factors that contribute to more consumption of junk food among school children are good quality taste, simple ease of use, reasonably priced price, choice, & flavour. ***(Shah T. et. al. 2014)*** This habit of consuming junk and fast food is worldwide leading to the danger of fatness & cause public health problems especially among school-age children i.e 10 to 12 years school students. ***(Kar S. et. al., 2018)***

Data obtained from ***WHO Nutrition report (2020)*** proclaims that 46 million children around the globe are victims of obesity or related health disease because of consuming Junk and fast food. ***(Rayner G. et. al., 2020)*** The ill effect of Junk food is through the globe but unfortunately developed countries have more cases than undeveloped countries and in developed countries like the USA or India the instances of more consumption of fast food are found considerably senior in urban school-going children than in rural school students. This trend can be an impact of liberalization of deal & overseas asset rule on foodstuff & drink crop in countries such as India. ***(Thow A. M. et. al., 2019)*** Thus the researcher found a significant change in consumption of food with low nutritional value has been the main cause of obesity among school-going children. ***(Popkin B. M. et. al., 2008)*** This insight the facts that ICT based intervention strategies should be developed specifically for school going children which can reduce the use of fast food and highlights the pros & cons of eating healthy food.

II. REVIEW OF LITERATURE AND RESEARCH GAP ANALYSIS

Many countrywide and worldwide researchers have carried out research primarily base on fast food intake & contain located so as to there is a connection among features (corporeal & cognitive) & the right weight-reduction plan and the body. ***(Gomez-Pinilla F. et. al., 2008 and Northstone K. et. al., 2012)*** in this look upon, the right nourishment facilitate the growth of the corpse & thoughts amongst brood. ***(Adversity I. F. et. al., 2003 and P´eneau S. et. al., 2011)*** Moreover, suitable nutrients at some stage in those degrees are crucial for obtaining abilities. ***(Hoyland A. et. al., 2009)*** Otherwise, it could result in increased morbidity and mortality among school-going children. It turned into found that every day, approximately 4200 school going youngsters had been dying because of preventable illnesses (vitamins deficiency, respiration infection, and twist of fate) around the sector. moreover, it indicates the bad fitness consequences related to growing the threat of chronic diseases. ***(Shetty P. et. al., 2013)***

In India, changes in food subculture were considerable over the past decade. those changes aren't most effective for eating conduct however too designed for foodstuff manufacture & approach towards it. That be especially discovered by several college-going children. nearly one-fourth of the total populace is made from faculty going youngsters. Of them, 54.2%, over 1/2 of school-going children have low information of right meals and their consequences; for this reason, the majority of them were prone to consuming junk meals. ***(Sapkota S. D. et. al., 2017)*** further, the use of fast meals various through period; it be establish so as to the senior percentage of fast food be in near the beginning faculty going youngsters (93%) as compared to overdue school going children (89%). ***(Aryal R. K. M. K. K. et. al., 2014)*** This dissimilarity inside the expenditure of fast meals is strong-minded utilizing the flavor & ease of use and via domestic & ecological factor. As a result, learning vitamins may be useful in improving the health and well being of college-going children and people.

Primarily research gap obtained from the finds of review claims that an instructional interference designed for alter in the behavioural meaning on the use of fast food meant for educate going children be able to assist to expand a improved sympathetic of the do & use of good food and school-going children within the revise scenery be chosen as rejection revise has be complete on this theme in research study area Jaipur, Rajasthan. Therefore this research endeavour will focus on school children which have be recognized as an significant location designed for collect the in order because student were incessantly in get in touch with with the teacher, teacher who can direct them to expand high-quality behavior all through their existence in educate. ***(Khorasani E. C. et. al., 2017)*** Thus, faculties are suitable vicinity for ICT based instructional intervention in the direction of add to information, attitude, & behaviour intended for promoting healthy eating habits among school-going children. Consequently, the present study will goal to evaluate the efficiency of instructive interference software (ICT enabled) base totally on top of the novel ICT strategies intended for plummeting fast food use amongst school-going children in Jaipur, India. Answer of the learn will surely assist to give the equipment used for raise focus, preparation fitness encouragement intervention, & promote studies in the direction of lessen fast food use behaviour, mainly amongst school-going children. Furthermore, the answer of the present learn determination be causal in the direction of improved treatment of the do of nourishment among school children around the globe.

III. RESEARCH METHODOLOGY

Research Methodology	
Objectives of Research	• To tax the efficiency of an ICT based instructive interference agenda for school going children in Jaipur to reduce Junk Food eating habits. • To suggest nutritional food eating habits for school going children in order of Cognitive development of children.
Hypothesis of Research	H_0: There is no significant effect of an ICT based educational intervention program in reducing Junk Food eating habits among school-going children in Jaipur
Research Design	Exploratory – In the direction of be acquainted with the parameter & devise the hypothesis. Analytical – In the direction of study the parameter establish absent. Pre-test & Post Test Research plan. (Before and after ICT Intervention)
Selected School Understudy	Four Co-Ed schools of Jaipur Urban (Having Annual fee of More than Rs 50,000/-)
Sampling Design	Stratified Random sampling Method
Sample Size	200 School Going Students of Grade 7 and age group 11 to 12 years.
Data Collection Techniques	**Primary Data collection –** A frame place of questionnaires for **Secondary Data Collection –** Research reports, WHO, CDC reports, Nutritional and health reports of Govt of India, books, journals, research papers etc.
Intervention Study	**ICT** based educational intervention tool was developed by a research scholar. **Period of Intervention –**

Phases of the study	**The current learn be conduct in three phase.** **First phase or Pre Test phase**- Collection of baseline in order of fast food utilization via respondents under study (n=200) school going students. **The second phase or Intervention Phase**: 3 Months (20 hours) based on PPT, Videos, Posters, Lectures etc from January 2020 to April 2020 with applied ethical permission from School authorities. **Third Phase or Post-test Phase:** The intervention package (ICT based interactive lecture, videos, ppt etc) intended for prevent the use of fast food to school going children were known in the direction of the similar participant in a alike set of pretest throughout train hours and data collected after Intervention.
Analytical tools For Pilot Study	Cronbach's alpha intended for dependability & Kaiser Meyer's Rank Test for Variability
Statistical Analysis for hypothesis testing	Multivariate ANOVA, Student paired "t" examination & Multiple regression psychoanalysis.

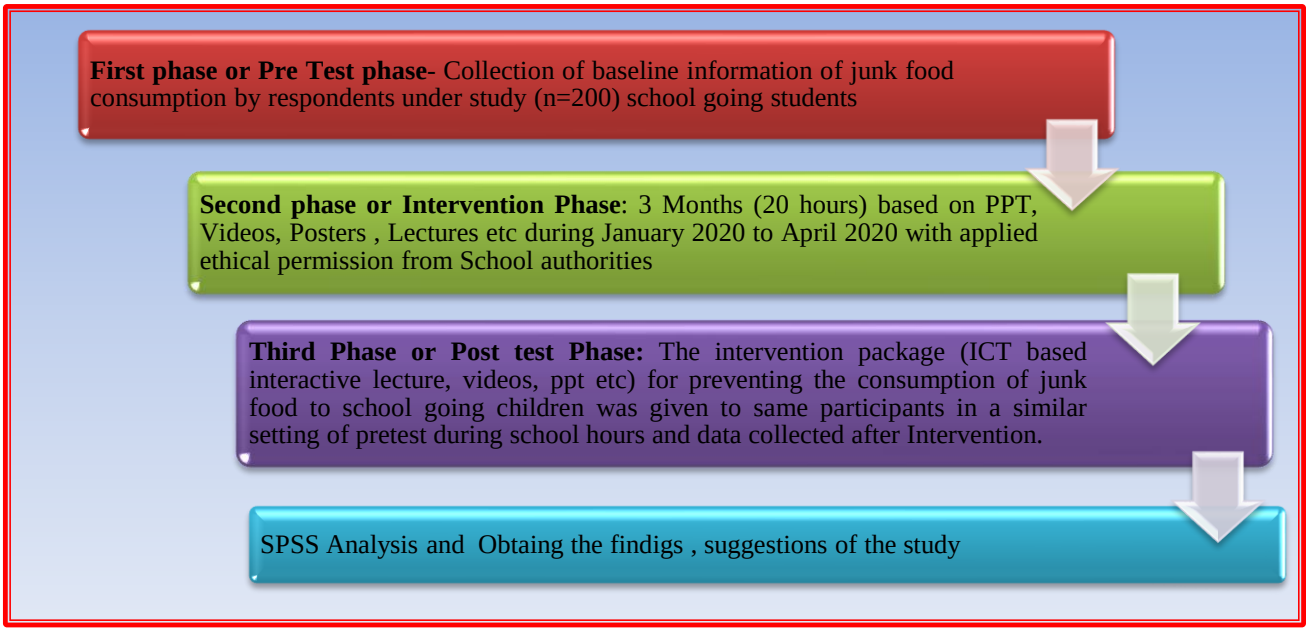


Figure 1. Research Flow Chart **Source:** Researcher's Illustration

IV. RESULTS AND DISCUSSION

4.1. Pilot Study results:

"It was found that Cronbach's alpha was 0.78, 0.79, 0.83, and 0.82 for behaviour intention, attitude, subjective norm, and perceived behaviour, respectively." "Then pretesting was conducted on 10% of the total sample size in a similar setting but different school. Necessary changes were corrected accordingly after the pretesting of the tools." Figure 1 reflect the addition of school-going children and schools for this study.

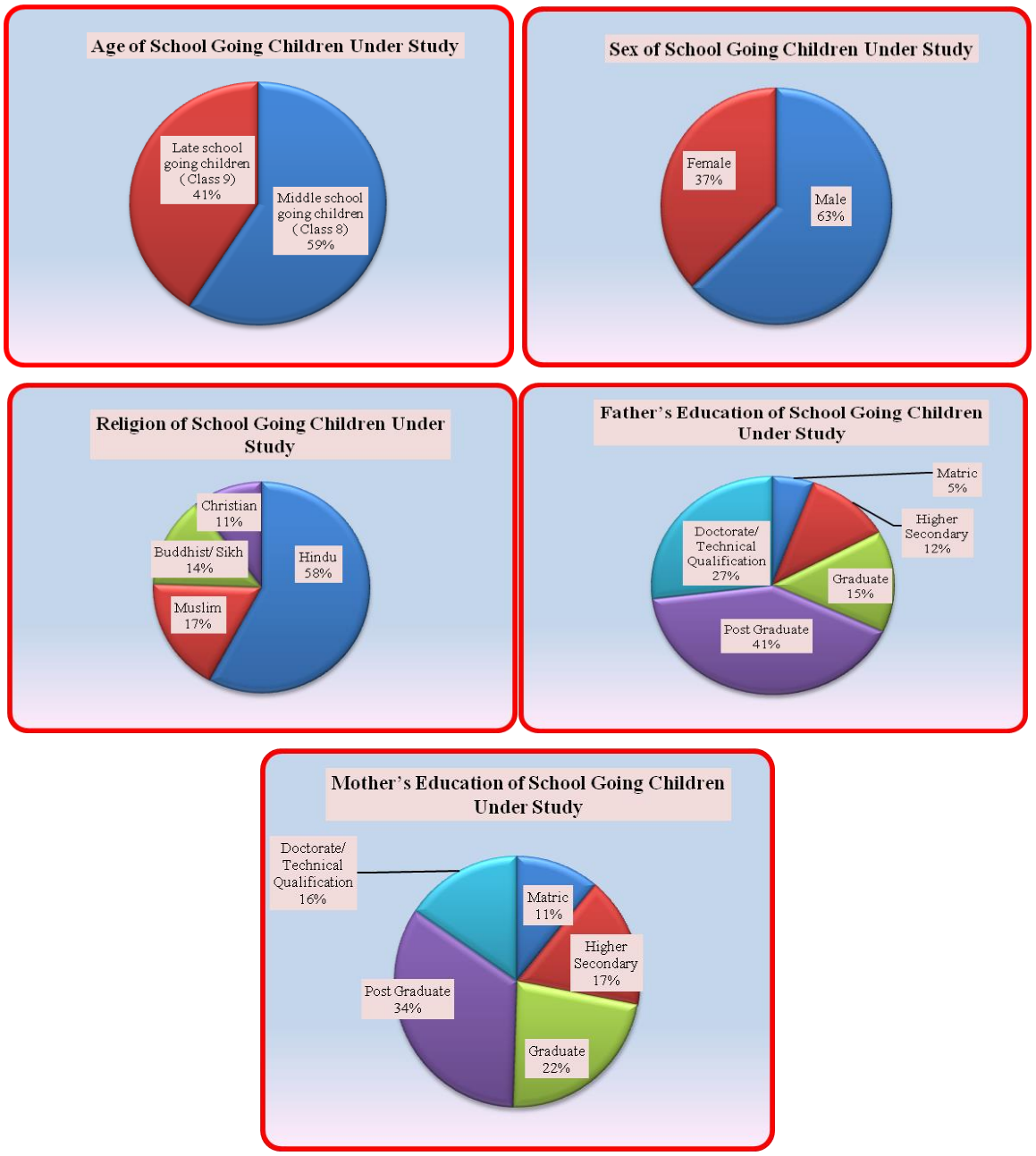
4.2. Demographic characters of School going Children under study.

"As stated earlier n = 200 school going children of four private schools of Jaipur, the data for the present study was collected with a varied set of demographic characters" Table 1 shows the socio-demographic characteristics of respondent's i.e. school-going children. The majority of the respondents were from the middle school age group i.e. of Class 8th (59%), were male students (63%), and were Hindu (58%). However, the preponderance of their father & mother be graduates in qualification.

Table 1: Demographic characteristics of Selected School Going Children.

Variables		Frequency	Per cent
Age	Middle school-going children (Class 8)	118	59
	Late school-going children (Class 9)	82	41
Sex	Male	126	63
	Female	74	37
Religion	Hindu	116	58
	Muslim	35	17.5
	Buddhist/ Sikh	28	14
	Christian	21	10.5
Father's education	Matric	11	5.5
	Higher Secondary	23	11.5

	Graduate	30	15
	Post Graduate	82	41
	Doctorate/ Technical Qualification	54	27
Mother's education	Matric	22	11
	Higher Secondary	34	17
	Graduate	45	22.5
	Post Graduate	68	34
	Doctorate/ Technical Qualification	31	15.5



Graph 1: Demographic characteristics of Selected School Going Children.

4.3. Pre-test and Post-test results of Meaning to Fast Food Use.

In the present research, study school going students of Jaipur show a statistically important disparity in intention within stipulations of their meaning in the direction of consume ($P < 0.0001$) & diagram to consume fast food in excess of the after that week ($P < 0.0001$) as exposed in Table 2. The regular attain of behavioural meaning in the direction of fast food use throughout the pretest was 4.98±1.6, which be distorted before the interference 6.84 ±1.2.

Results of the present study proclaimed that before the ICT based intervention, 52.23% of student have a far above the ground meaning in the direction of eat fast food in excess of the after that week which was decreased to 12.36% following the ICT based educational interference. The consequence of balancing *t*-tests show a statistically important dissimilarity inside behavioural meaning toward fast food use following the interference ($P < 0.0001$) as shown in Table 3.

Table 2: Intention toward junk food consumption in Pre and Post-test (ICT based Intervention)

Statements	Pretest Mean ± SD	*P*-value	Posttest Mean ± SD	*P*-value
Attitude toward junk food				
I like the taste of junk food	3.40 ± 0.90	<0.0001	4.60 ± 0.69	<0.0001
Satisfaction after eating junk food	3.19 ± 0.68	<0.0001	4.23 ± 0.56	<0.0001
Junk food is good for health	3.85 ± 0.59	<0.0001	4.95 ± 0.38	<0.0001
Junk food increases the weight	3.56 ± 0.78	<0.0001	3.98 ± 0.67	<0.0001
It is convenient to prepare junk food	3.67 ± 0.88	<0.0001	4.12 ± 0.62	<0.0001
Subjective norm toward junk food				
Parents' approval for junk food	3.98 ± 0.32	<0.0001	4.92 ± 0.36	<0.0001
Teachers' approval for junk food	4.95 ± 0.48	<0.0001	4.98 ± 0.42	<0.0001
Friends' approval for junk food	3.22 ± 0.86	<0.0001	4.33 ± 0.69	<0.0001
Siblings' approval for junk food	3.38± 0.80	<0.0001	4.38 ± 0.70	<0.0001
Perceived behavioural control for junk food				
Advertisement influences me to eat junk food	3.63 ± 0.65	<0.0001	4.53 ± 0.64	<0.0001
Price influences me to eat junk food	3.65 ± 0.61	<0.0001	3.90 ± 0.60	<0.0001
Limited time influences me to eat junk food	3.56 ± 0.71	<0.0001	4.31 ± 0.72	<0.0001
Easy accessibility of junk food in school influences me to eat junk food	3.72 ± 0.77	<0.0001	4.35 ± 0.82	<0.0001
Behavioural intention toward junk food				
I intend to eat junk food over the next week	3.85 ± 0.88	<0.0001	4.95 ± 0.28	<0.0001
I plan to eat junk food over the next week	3.79 ± 0.80	<0.0001	4.99 ± 0.19	<0.0001

The result of balancing *t*-tests show a statistically important dissimilarity inside outlook to fast food expenditure subsequent to the interference (<0.0001) as exposed inside Table 3. Thus as the P-value is highly significant it is found that null hypothesis **H_0**: *"There is no significant effect of an ICT based educational intervention program in reducing Junk Food eating habits among school-going children in Jaipur"* **is Rejected** and Alternate Hypothesis **H_1**: "*There is no significant effect of an ICT based educational intervention program in reducing Junk Food eating habits among school-going children in Jaipur"* is **Accepted and Proved**.

Table 3: Level of construct before and after intervention

	Pretest *n* (%)	Construct of TPB Posttest *n* (%)	Pre-*t*-test Mean CSD	Post-*t*-test Mean ± SD	*P*-value
Attitude			11.9 ± 1.5	16.3 ± 1.6	<0.0001
Positive (≤mean)	79 (28.8%)	142 (51.8%)			
Negative (>mean)	195 (71.2%)	132 (48.2%)			
Subjective norm			11.1 ± 1.3	14.3 ± 1.4	<0.0001
Positive (≤mean)	146 (53.3%)	181 (66.1%)			
Negative (>mean)	128 (46.7%)	93 (33.9%)			
Perceived behavioural control			9.9 ± 1.0	12.76 ± 1.5	<0.0001
Positive (≤mean)	105 (38.3%)	142 (51.8%)			
Negative (>mean)	169 (61.7%)	132 (48.2%)			
Behavioural intention			4.98 ± 1.6	7.96 ± .3	<0.0001
High (≤mean)	182 (66.4%)	5 (1.8%)			
Low (>mean)	92 (33.6%)	269 (98.2%)			

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Junk food is commonly eaten fast food or unhealthy leading meals in India, mainly with children of school age group around 11 to 13 years old and enhanced significantly during COVID19 pandemic period. The present study revealed that 94% of school-going children under study eat Junk fast food. Consequently it is important in the direction of keep in mind how fast food desire be developing several school-going children. "Therefore, this takes a look highlights the effectiveness of ICT based instructional intervention by means of the variables of mindset, slanted norm, apparent conduct, & behavioural goal towards fast food for several school-going children by the use of more than one linear weakening replica & balancing t-test." "Results of the present study revealed that 85% of school-going children had fed on junk meals even as they were during intervention programme days." "The positive outcome of the effect was that majority of students who is school-going children under the present study have significantly reduced the consumption of junk food after ICT based intervention."

"Different studies carried out around the globe recommended that if the human beings acquired the information as of some basis of media/methods, then their purpose distorted into modified through physical condition schooling sports & for that reason decreased the intake of junk food." ***(Pour-Abdollahi P. et. al., 2004 and Khalaj M. et. al. 2006)*** Consequently, students turn into much fewer tending in the direction of consume fast food in the container wherein they've distorted attitude closer to fast meals, & their intention, otherwise pressure resting on them, toward apply fast meals are near to the ground. As a result, school-going children wonderful attitude be supposed to be bolstered inside do thru instructional interventions.

"Moreover, the denote rating of behavioural meaning for decreasing fast food intake becomes accelerated subsequent to the interference." "The denote rating of behavioural purpose at some stage in pretest became 8.2 whilst 11.9 throughout posttest." An add to inside the terrible approach in the direction of the fast meals intake has sensibly unspecified so as to present may be a growth inside the degree of information on top of fast food which help in the direction of boom the extent of consciousness & saves you the excessive use of fast food. "Alike answer of our test be coordinated with some additional study which show so as to teaching be the important thing plan in the direction of fetch effective modifications in the direction of junk food consumption. Further, after converting their recognition stage, the general mean rating become found as 3.93 in pretest, while it becomes 5.34 in the posttest" "As a result, it be establish so as to instructive interference have a main position inside prevent the use of fast food." "These strategy do something in the direction of add to the constructive thoughts feel through school-going children & show the way in the direction of rising the optimistic result of physical condition & growth." Therefore this learn indicate so as to fast food use was mainly affected through the ICT based teaching interventional wrap up &, so, the educate establishment & administration be supposed to disburse additional notice to fast food & give wanted letters next to the expenditure of fast food inside school.

V. CONCLUSIONS

This learn show the efficiency of an ICT based instructive interference agenda in the middle of the school-going children in Jaipur. It be establish so as to the ICT based interactive technique is an effectual method intended for altering the meaning in the direction of eat fast food among school-going children under study. "Therefore, the instructive interference plan is effectual in favor of altering the student's outlook, prejudiced standard, & insight behaviour in the direction of the use of fast food." Thus, it be optional so as to alike study call for toward be perform in additional community & districts, on the local & nationwide level in India.

1. **Limitations of the Study:** Firstly, the learn listening carefully merely on the school-age student as of chosen schools; we do not take in other student unpaid in the direction of the unavailability of occasion. Secondly, a researcher was not able to explore the behaviour of fast food in the midst of the school-going children outstanding on the way to the petite epoch. Consequently, it can not be alive potential to assess the efficiency of interference on behalf of prevent the use of fast food.
2. **Data Availability:** Data will be provided upon reasonable request from the corresponding author.
3. **Conflicts of Interest:** The authors declare that there are no conflicts of interest regarding the publication of this paper.

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