

## ADVERSE EFFECTS OF TELEVISION ADVERTISEMENTS FOR CHILDREN IN ERODE DISTRICT BASED ON STRUCTURAL EQUATION MODELING

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### Abstract

Television is a popular advertising medium for food and beverage products all over the world. In most of the countries recent audits of television advertising have reported a high volume of food advertisements targeted at children. Frequently advertised products include breakfast cereals, soft drinks, snacks and fast foods. Consequently, television advertising has been the cause of more concern and debate, in terms of its effects on children, than any other marketing technique. This focus is reflected by a recent surge in the amount of both statutory and self-regulatory activity intended to address the issue. This study is an attempt to find the adverse effect of TV advertising on children's preservative food products. In order to achieve this objective based on the fieldwork in the District of Erode, views of children, parents and paediatricians are studied. It is done with a thought that of all the segments of TV audience, children deserve special attention as they are most likely to accept, believe and orient their lives according to the TV ads. This study is going to be useful to the parents, paediatricians, Manufacturing companies, Television advertisement agencies, Government and the society as a whole to know the behaviour of the children and how they are being affected by TV advertisements adversely. Structural equation modeling is applied for assessing the relationship between selected independent variables of the adverse effects of advertisements telecasted on television in Erode district.

*Keywords: Television, breakfast cereals, soft drinks, snacks , fast foods, marketing technique, preservative food products, District of Erode and Structural equation modeling*

## 1.1 INTRODUCTION

Structural Equation Modeling is a very general statistical modeling technique, which is widely used in the behavioural sciences. It can be viewed as a combination of factor analysis and regression or path analysis. The interest in SEM is often on theoretical constructs, which are represented by the latent factors. The relationships between the theoretical constructs are represented by regression or path coefficient between the factors. The structural equation model implies a structure for the covariance between the observed variables, which provides the alternative name covariance structure modeling. However, the model can be extended to include means of observed variables or factors in the model, which makes covariance structure modeling a less accurate name. Structural Equation Modeling has its roots in path analysis, which was invented by the geneticist Sewall Wright. It is still customary to start a SEM analysis by drawing a path diagram. A path diagram consists of boxes and circles, which are connected by arrows. In Wright's notation, observed (or measured) variables are represented by a rectangle box and latent (or unmeasured) factors by a circle or ellipse or square box. Single headed arrows or 'paths' are used to define causal relationships in the model, with the variable at the tail of the arrow causing the variable at the point. Double headed arrows indicate covariances or correlation without a causal interpretation. Statistically the single headed arrows or paths represent regression coefficients and double-headed arrows covariances. Extensions of this notation have been developed to represent variances and means

## 1.2 REVIEW OF LITERATURE:

**Zhu, S. P., et al (2008)** Studied on factors related to top 10 junk food consumption at 8 to 16 years of age, in Haidian District of Beijing. The survey was done on 1019 children and adolescents. Eating junk food is a popular event among children and adolescent in Beijing Haidian District. The junk food namely deep fried food, pickled food, processed meat products, biscuits, coke or alike

drinks, convenience/ fast food, canned food, dried or preserved fruit, cold and sweet food, barbecue food etc. One month prior to the study, 97.50% of the children and adolescent had eaten at least one type of junk food and 15.88% of them had eaten all types of them. Rates of having eaten deep fried food 70.43%, biscuits 64.24%, coke or alike drinks 69.63% convenience/ fast food 78.72%, dried preserved fruit 51.95% and cold and sweet food 68.13%. Most of the children and adolescent ate junk food mainly during breakfast at home. They (children and adolescents) received the information of junk food mainly from sources as advertisement on TV (67.95%), mother (9.02%), newspaper or magazines (6.71%).

**Nisar, N., et al (2009)** studied on Dietary habits and life style among the students of a private Medical University Karachi. A cross- sectional study was conducted at Baqai Medical University. A total of 384 students 53.4% were male and 46.6% females. 96.4% were found habitual of junk food whereas 72.4% consume cold drink daily. Junk food consumption was associated with overweight. Those who were consuming cold drinks were found more overweight as compared to those who did not. Junk food, cola consumption and physical inactivity were identified as the main cause for being overweight. Americans are getting nearly one-third of their calories from junk foods; soft drinks, sweets, desserts, alcoholic beverages, and salty snacks. They suggested that this dietary habit is prevalent in our youngsters both males and females, despite knowing its harmful effects. It is a known fact that a healthy diet containing fiber and exercise can prevent obesity and chronic diseases. Their study had similar results showing that obesity was observed in students having high calorie junk food. They concluded that the dietary habits and life style of medical students were not healthy; junk food and cola consumption was high withBpredominance of overweight and physical inactivity. They suggest that Improvement in life style if made early in life and during medical schooling would produce physicians practicing and promoting healthy diet and active life style. Regardless of predisposing factors, diet and

lifestyle have a great influence on morbidity and mortality in life. Due to the cumulative effect of adverse factors throughout life of an individual, it is particularly important to adopt a healthy diet and lifestyle practice.

### **1.3 RESEARCH MODEL AND HYPOTHESIS FORMULATION**

The research hypotheses have been defined on the basis of the constructs outlined above and using previous research on adverse effects of advertisements telecasted on television. The following figure is a graphic presentation of the developed hypothetical model. On the basis of above presented model, the following hypotheses are proposed.

### **1.4 HYPOTHESIS OF THE STUDY**

There is a no significant relationship between selected independent variables of the adverse effects of advertisements telecasted on television in Erode district.

## 1.5 ANALYSIS AND INTERPRETATION

**Table 1.1**  
**Communalities - Before removal of low loading variables**  
**(List of Measured Variables)**

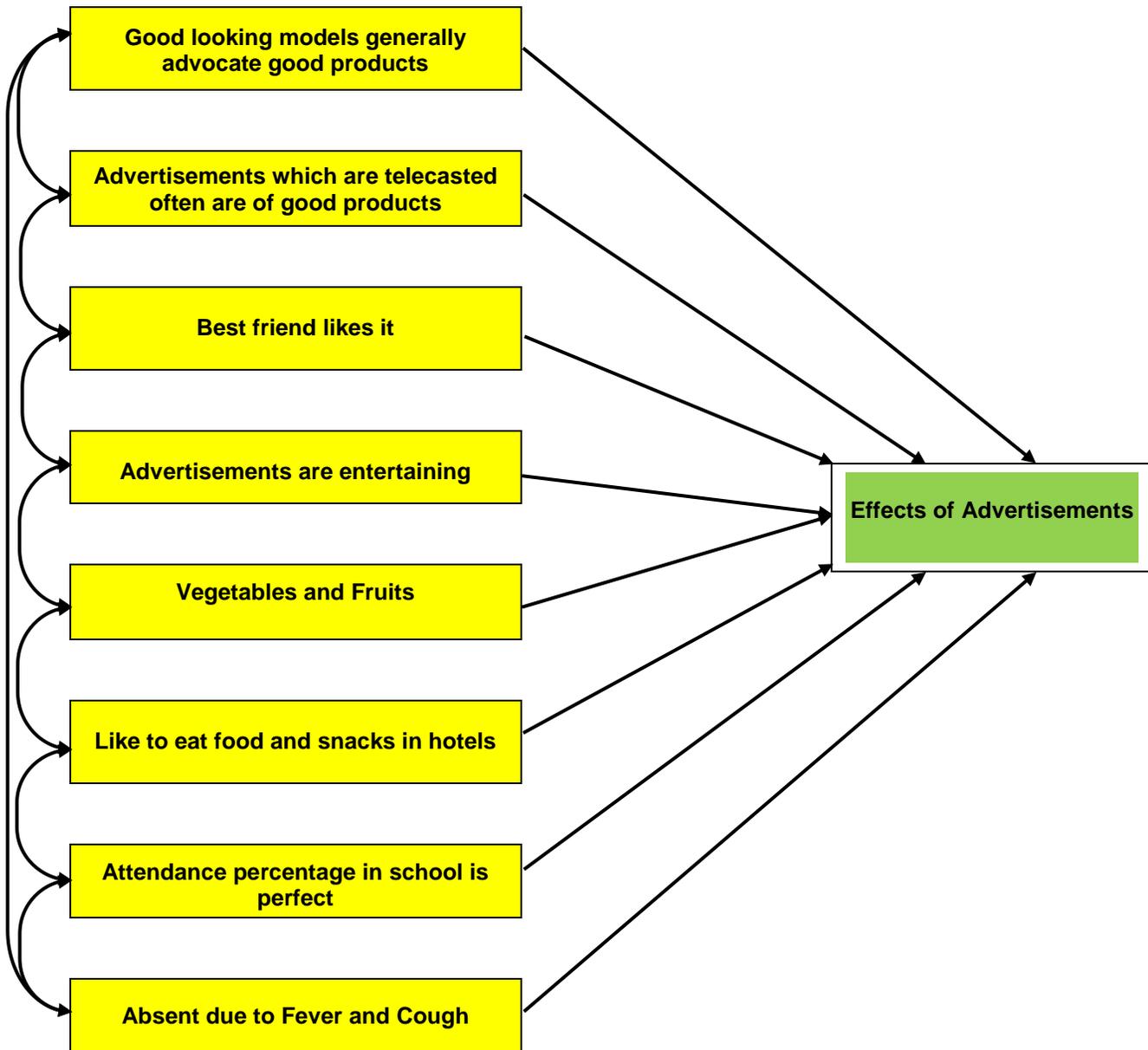
S.No	Variable	Initial	Extraction
1	An advertisement where a doctor, scientist or a successful sportsman advocates a product is a truthful advertisement	1.000	0.621
2	Products acknowledged by celebrities are good products	1.000	0.675
3	Good looking models generally advocate good products	1.000	0.789
4	Famous personalities will always advocate good products	1.000	0.505
5	Brand identity companies make good products	1.000	0.548
6	Advertisements which are telecasted often are of good products	1.000	0.892
7	Advertisements featuring children of the same age impress more	1.000	0.570
8	Like the slogan in it	1.000	0.659
9	Because everybody in the house likes it and therefore	1.000	0.600
10	Best friend likes it	1.000	0.735
11	Advertisements are entertaining	1.000	0.887
12	Parents can watch them and buy things	1.000	0.633
13	Can watch them and choose things for yourself	1.000	0.598
14	Parents can easily be persuaded to buy certain things	1.000	0.643
15	Vegetables and Fruits	1.000	0.786
16	Fresh juices or soft drinks and packed tin juice	1.000	0.567
17	Complan / Pediasure are used frequently	1.000	0.659
18	Noodles and Cornflakes	1.000	0.571
19	Like to eat food and snacks in hotels	1.000	0.854
20	Attendance percentage in school is perfect	1.000	0.824
21	Absent due to Fever and Cough	1.000	0.816
22	Absent due to Stomach Upset	1.000	0.599
23	Absent due to other infectious diseases	1.000	0.508

The above table enumerates that the communalities of the selected 23 variables have good reliability 0.969 and are keenly checked that only 08 variables are selected and low loading, ie., less than 0.7 extraction variables are removed. Thus finally, the 08 variables are selected for the SEM analysis.

**Table 1.2**  
**Communalities – After removal of low loading variables**  
**(List of Measured Variables)**

S.No	Variable	Initial	Extraction
1	Good looking models generally advocate good products	1.000	0.789
2	Advertisements which are telecasted often are of good products	1.000	0.892
3	Best friend likes it	1.000	0.735
4	Advertisements are entertaining	1.000	0.887
5	Vegetables and Fruits	1.000	0.786
6	Like to eat food and snacks in hotels	1.000	0.854
7	Attendance percentage in school is perfect	1.000	0.824
8	Absent due to Fever and Cough	1.000	0.816

### 1.6 HYPOTHESIS SUPPORTING RESEARCH MODEL



## 1.6 VALIDITY OF THE MEASUREMENT

In structural equation modeling the confirmatory factor model is imposed on the data. In this case the purpose of structural equation modeling is twofold. First it aims to obtain estimates of the parameters of the model, i.e., the factor loadings, the variances and covariances of the factor and the residual error variances of the observed variables. The second purpose is to assess fit of the model, i.e., to assess whether the model itself provides a good fit to the data.

The ability of SEM to produce a meaningful identification of the correlation between factors is a key strength.

In multiple regression analysis, generally assume that the independent variables are correlated as the two-headed arrows between the predictor variables. The residual error in multiple regression analysis is actually an unobserved latent variable. Note that to fix loading of the residual error factor to one to achieve identification.

To obtain unstandardized and standardized regression weights, a variance estimate for the residual errors and the squared multiple correlation of the dependent variable “Adverse Effects of Advertisements Telecasted on Television”. In this case, the calculated value of chi-Square test is 212.484 on 7 degrees of freedom which gives a p-value of 0.000 and this model is a good fit for the analysis. The real strength of SEM is to estimate more complicated path models with intervening variables between the independent and dependent variables and latent factor as well.

## Maximum Likelihood Estimates

Table 3  
Regression weights

Latent Variables	←	Measured Variables	Estimate	S.E	C.R	P
Effects of Advertisements	←	Good looking models generally advocate good products	0.002	0.010	0.176	1%
Effects of Advertisements	←	Advertisements which are telecasted often are of good products	0.155	0.011	14.276	5%
Effects of Advertisements	←	Best friend likes it	0.055	0.012	4.718	1%
Effects of Advertisements	←	Advertisements are entertaining	0.193	0.009	1.730	NS
Effects of Advertisements	←	Vegetables and Fruits	0.147	0.016	9.177	NS
Effects of Advertisements	←	Like to eat food and snacks in hotels	0.113	0.013	8.650	1%
Effects of Advertisements	←	Attendance percentage in school is perfect	0.278	0.013	12.598	5%
Effects of Advertisements	←	Absent due to Fever and Cough	0.010	0.011	11.876	1%

The above table shows that the regression coefficient of the exogenous variables. It is noted that critical ratio except the variable as “Advertisements are entertaining and Vegetables and Fruits” of the respondents is above table value 1.860 and 1.381 respectively and it is not significant at 1 and 5 per cent level. Among the selected 08 variables except the variable “Advertisements are entertaining and Vegetables and Fruits” are the most influenced factors of adverse effects of advertisements telecasted on television.

**Table 1.4**  
**Covariance: (Group Number 1 – Default Model)**

Measured Variables	<-->	Measured Variables	Estimate	S.E	C.R	P
Good looking models generally advocate good products	<-->	Advertisements which are telecasted often are of good products	0.574	0.030	19.409	1%
Advertisements which are telecasted often are of good products	<-->	Best friend likes it	0.349	0.032	10.940	1%
Best friend likes it	<-->	Advertisements are entertaining	0.054	0.033	-1.629	5%
Advertisements are entertaining	<-->	Vegetables and Fruits	0.040	0.036	-1.110	NS
Vegetables and Fruits	<-->	Like to eat food and snacks in hotels	0.540	0.023	23.700	1%
Like to eat food and snacks in hotels	<-->	Attendance percentage in school is perfect	0.506	0.037	13.696	5%
Attendance percentage in school is perfect	<-->	Absent due to Fever and Cough	0.082	0.035	-2.373	1%
Absent due to Fever and Cough	<-->	Good looking models generally advocate good products	0.041	0.023	1.753	1%

From the above covariance matrix it is identified that the critical ratio value of the all the combinations less than the table value. But “Good looking models generally advocate good products” is correlated with “Advertisements which are telecasted often are of good products” at 1 per cent level of significant. “Advertisements which are telecasted often are of good products” is correlated with “Best friend likes it” at 1 per cent level of significant. “Best friend likes it” is correlated with “Advertisements are entertaining” at 5 per cent level of significant. “Advertisements are entertaining” is correlated with “Vegetables and Fruits” is not significant. “Vegetables and Fruits” is correlated with “Like to eat food and snacks in hotels” at 5 per cent level of significant. “Like to eat food and snacks in hotels” is correlated with “Attendance percentage in school is perfect” at 1 per cent level of significant. “Attendance percentage in school is perfect” is correlated with “Absent due to Fever and Cough” at 1 per cent level of significant. “Absent due to Fever and Cough” is correlated with “Good looking models generally advocate good products” at 1 per cent level of significant.

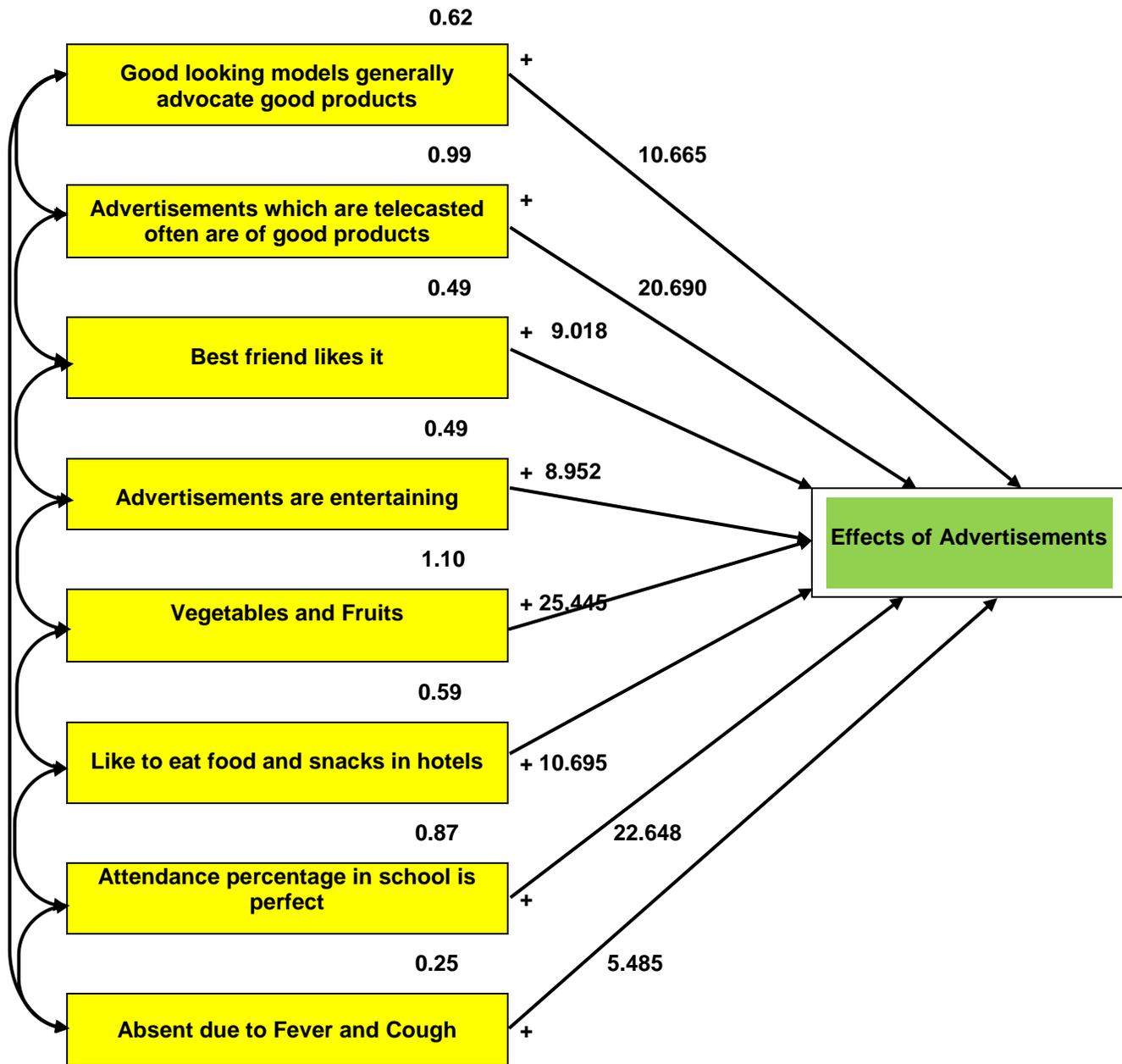
**Table1.5**  
**Bootstrapping**

Paths		Estimate	S.E	Mean	't' Value	Result	
Good looking models generally advocate good products	→	Effects of Advertisements	0.621	0.058	3.859	10.665	H <sub>1</sub> Accepted
Advertisements which are telecasted often are of good products	→	Effects of Advertisements	0.993	0.048	3.578	20.690	H <sub>2</sub> Accepted
Best friend likes it	→	Effects of Advertisements	0.492	0.055	3.919	9.018	H <sub>3</sub> Accepted
Advertisements are entertaining	→	Effects of Advertisements	0.485	0.054	3.788	8.952	H <sub>4</sub> Accepted
Vegetables and Fruits	→	Effects of Advertisements	1.100	0.039	3.597	25.445	H <sub>5</sub> Accepted
Like to eat food and snacks in hotels	→	Effects of Advertisements	0.593	0.055	2.829	10.695	H <sub>6</sub> Accepted
Attendance percentage in school is perfect	→	Effects of Advertisements	0.872	0.039	2.897	22.648	H <sub>7</sub> Accepted
Absent due to Fever and Cough	→	Effects of Advertisements	0.248	0.045	3.132	5.485	H <sub>8</sub> Accepted

### Structural Equations: Methodology and Technical Application

The following path analysis is used to prove the selected hypothesis.

### HYPOTHESIS MODEL



**Table1. 6**  
**Testing of Hypothesis**

Hypothesis	Hypothetical Relationship	Result
H1: There is a positive impact of "Good looking models generally advocate good products on Effects of Advertisements"	Positive	Confirmed
H2: There is a positive impact of "Advertisements which are telecasted often are of good products on Effects of Advertisements"	Positive	Confirmed
H3: There is a positive impact of "Best friend likes it on Effects of Advertisements"	Positive	Confirmed
H4: There is a positive impact of "Advertisements are entertaining on Effects of Advertisements"	Positive	Confirmed
H5: There is a positive impact of "Vegetables and Fruits on Effects of Advertisements"	Positive	Confirmed
H6: There is a positive impact of "Like to eat food and snacks in hotels on Effects of Advertisements"	Positive	Confirmed
H7: There is a positive impact of "Attendance percentage in school is perfect on Effects of Advertisements"	Positive	Confirmed
H8: There is a positive impact of "Absent due to Fever and Cough on Effects of Advertisements"	Positive	Confirmed

### **1.7 .CONCLUSION**

There is a lot of violence, addiction, consumerist inducements and hedonism life styles and foreign cultural expressions on TV advertisement. Parents fear that TV advertisement will have adverse effects on the development of their children. On the other hand, they find it difficult or inadvisable to keep TV advertisement away from them, its positive influence being one of the reasons. Parents and Paediatricians thus, find themselves in a dilemma as to what they should do with Television Advertisement. This study focuses on the conditions under which TV advertisement influences children. It proposes that a well socialised child is more to be influenced by TV in an unhealthy way. From the

path diagram measured variables with latent variables of adverse effects of advertisements telecasted on television is having positive relationship and also significance at 1 and 5 per cent level. The analysis of the model, from the viewpoint of the appreciable effects of advertisements, suggests that all the measured variables are significantly impact of adverse effects of advertisements telecasted on television in the study area.

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