

Research on how local authorities funding affects childhood obesity in South East England

1.Introduction

Childhood obesity has become a concerning topic in local communities in the past decade. Nearly a third of children in England aged 2–15 years are overweight or obese (Health, 2014, p. 2015). Therefore, it becomes imperative for the local authorities across England to take measures to face the problem.

This paper primarily focuses on whether funding in raising awareness in school and through media would affect the number of obesity cases in the southeast part of England through 2008 to 2018. By conducting quantitative analysis on 2008, 2013 and 2018 data source, this paper also provides insights about how things changed ever since 2008.

2.Methodology

Two models are adopted in this paper which is the regression model and correlation model. The regression model is adopted to test the multiple variables relationships based on the data source. The correlation model is adopted to test whether the multiple variables are related to each other.

3.My Hypothesis & Regression model

A great amount of funding has been distributed into raising awareness in schools and media over 2008 to 2018 in the southeast of England. As far as I concerned, I assume that “financial support in raising awareness in school”, “financial support in raising awareness through Media” could influence the cases of childhood obesity. Thus, I select relevant factors and make multiple regression model to test these assumptions.

3.1. Regression result

Regression result in 2018:

	Coefficients	t Stat	P-value	VIF	R Square
Intercept	271.606	1.580	0.134		
school_awareness	0.003	1.690	0.110	2.189	0.805
media_awareness	0.014	4.130	0.001	2.189	

Table1

From the testing result, it is clear that financial support in raising awareness in school and through media are taken as independent variables, while the total cases of childhood obesity in 2018 are taken as dependent variables. Besides, R square value of the model equals to 0.805, which represents that about 80.5% samples can be explained by this model. According to the coefficients of x variables and intercept, the relationship

between numbers of obese children and funding in raising media and school awareness can be written that:

Total obesity cases in 2018 = 271.606 + 0.003*funding in school + 0.014*funding through media

To focus on the coefficients of x variables, the coefficient value of funding in school equals to 0.003($t=1.690$, $p=0.110>0.05$), which means financial support in raising awareness in school would give no impact on childhood obesity in 2018.

While for the coefficient value of financial support in raising awareness through media, it equals to 0.014($t=4.130$, $p=0.001<0.01$), indicating that giving funds through media would give a significant positive influence on childhood obesity. In another word, in the south east part of UK, the local authorities' financial support in raising awareness through media could effectively influence the number of obese children in 2018. The scatterplot below demonstrates the fitting degree of this regression model.

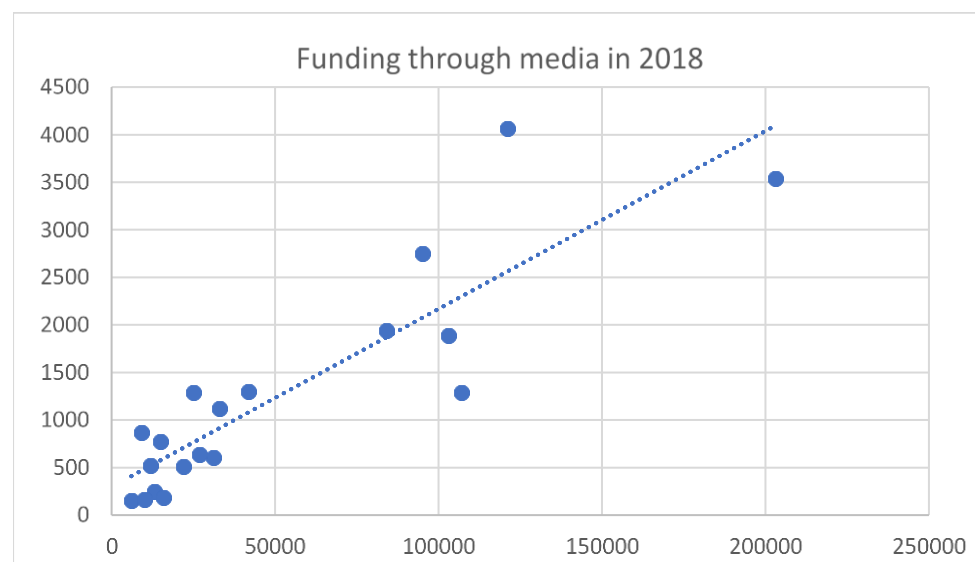


Table2

In Conclusion, by testing the data in regression, funding in raising awareness in school had no impact on the number of obese children while funding in raising awareness through media could give significant influence on childhood obesity in 2018 in the southeast part of England

However, there is a point far away from other points which is Kent city (121000,4063). Therefore, it is considered as an outlier. In Dartford, Kent, more than a quarter of children are overweight or obese. Meanwhile, obesity rates are particularly high in other parts of Kent. Research shows that obesity prevalence is strongly linked to deprivation (Gouk and MacDougall, 20119). In this case, this point will be excluded because it is not a typical sample and is not representative.

Regression result in 2008

	Coefficients	t Stat	P-value	VIF	R Square
Intercept	269.530	1.809	0.089		
school_awareness	0.003	1.991	0.064	2.189	0.789
media_awareness	0.011	3.586	0.002	2.189	

Table 3**Regression result in 2013**

	Coefficients	t Stat	P-value	VIF	R Square
Intercept	255.566	1.575	0.135		
school_awareness	0.003	1.886	0.078	2.189	0.791
media_awareness	0.012	3.709	0.002	2.189	

Table 4

Next, I tested the relationship between cases of obese children and fund in raising awareness in school & media in the year of 2008 and 2013. According to the result, both models shows the statistical significance. And the relationship between those variables can be written like this below with the scatter plots (Table5 & Table6):

Total cases in 2008 = 269.530 + 0.003*school awareness + 0.011*media awareness. (table3)

Total cases in 2013=255.566 + 0.003*school awareness + 0.012*media awareness. (table4)

The regression coefficient of school awareness in 2008 equals to 0.003 (t=1.991, p=0.064>0.05), and this index in 2013 equals to 0.003(t=1.886, p=0.078>0.05). Thus, the x variable of funding in raising awareness in school still had no impact on childhood obesity neither in 2008 nor 2013.

In terms of the factor of funding in raising awareness through media, it showed the strong and positive relationship with childhood obesity all the time from 2008 to 2018 by referring to the P value and their coefficients in the model above.

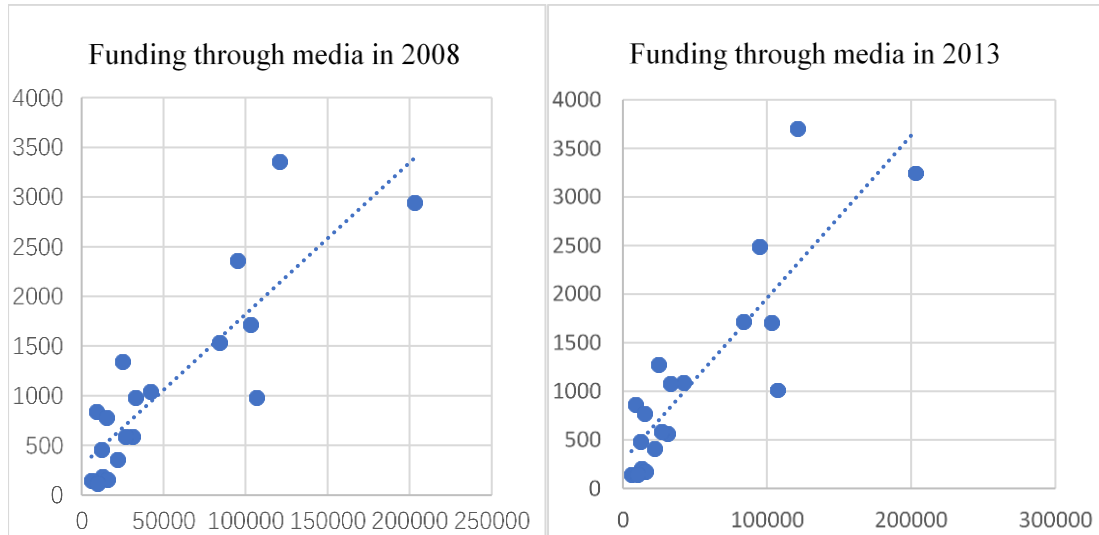


Table 5

Table 6

4. Correlation among consumption values

Additionally, I intent to know whether the financial support in raising school & media awareness would have closely relationship with obese children by sex in 2018, so I choose the number of obese male and female respectively to test the relationship with financial support in school and media.

4.1. Correlation result

According to correlation matrix result (Table6), All the correlation coefficients below in the table are over 70%, that means the number of obese male and female, funding in raising awareness in school and through media had close correlation with each other.

As for the obese male in 2018, it is obvious that funding in raising awareness through media had closer relation with number of male obesity than the funding in school (0.85 and 0.76). On the other hand, for the obese female in 2018, financial support in raising awareness through media also showed the closer correlation with female obesity, comparing with funding in raising awareness in school. To focus more on the effect on obesity by sex, the financial support in raising awareness through media in 2018, it had a strong relation with female obesity.

	2018_cases_male	2018_cases_female	school_awareness	media_awareness
2018_cases_male	1			
2018_cases_female	0.985482274	1		
school_awareness	0.763522588	0.774390974	1	
media_awareness	0.845728024	0.892032012	0.737014317	1

Table 6

5. Conclusion (Conclude based on research question)

The study successfully explains funding in media awareness has a significance in influencing total obesity cases while funding in school awareness is considered insignificant in southeast communities in England in the past decade.

Reference list

Health, Social Care Information Centre. (2014) Health survey for England, p2015.

Gouk,A , MacDougall, L. (2019) 'The Kent towns with the most obese children shamed in shocking report', Kent News. Available at: <https://www.kentlive.news/news/kent-news/kent-towns-most-obese-children-3437918>