CULTURAL ENGAGEMENT AND WELLBEING IN COVENTRY: LINEAR REGRESSION FROM THE HOUSEHOLD SURVEY 2022

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Regression modelling can examine the relationship between variables. These are often referred to as an independent variable which may have an impact on a dependent variable or outcome. This is known as a univariate model. The impact is known as the coefficient and is the size of the impact of one variable on the other. Additional variables that may separately influence the independent, dependent variables or both may unduly influence this relationship. These can also be accounted for using this technique, known as adjustment for confounders. This is a multivariate regression model.

This analysis uses this technique to assess for a relationship between cultural engagement and wellbeing within Coventry as identified in the Coventry Household Survey of 2022. Cultural engagement was taken from the question how much time was spent in the last week doing "cultural activities and social activities", with four time-based responses ranging from none to more than 2.5 hours. Wellbeing was measured using the Shortened Warwick-Edinburgh Mental Wellbeing Scale (SWEMWEBS).

Following this, an adjusted multivariate regression model was used. Employment status, gender, age, marital status, sexuality, religion, armed forces membership, ethnicity, and index of multiple deprivation (IMD) were included within the regression model. These factors are known to influence wellbeing scores.

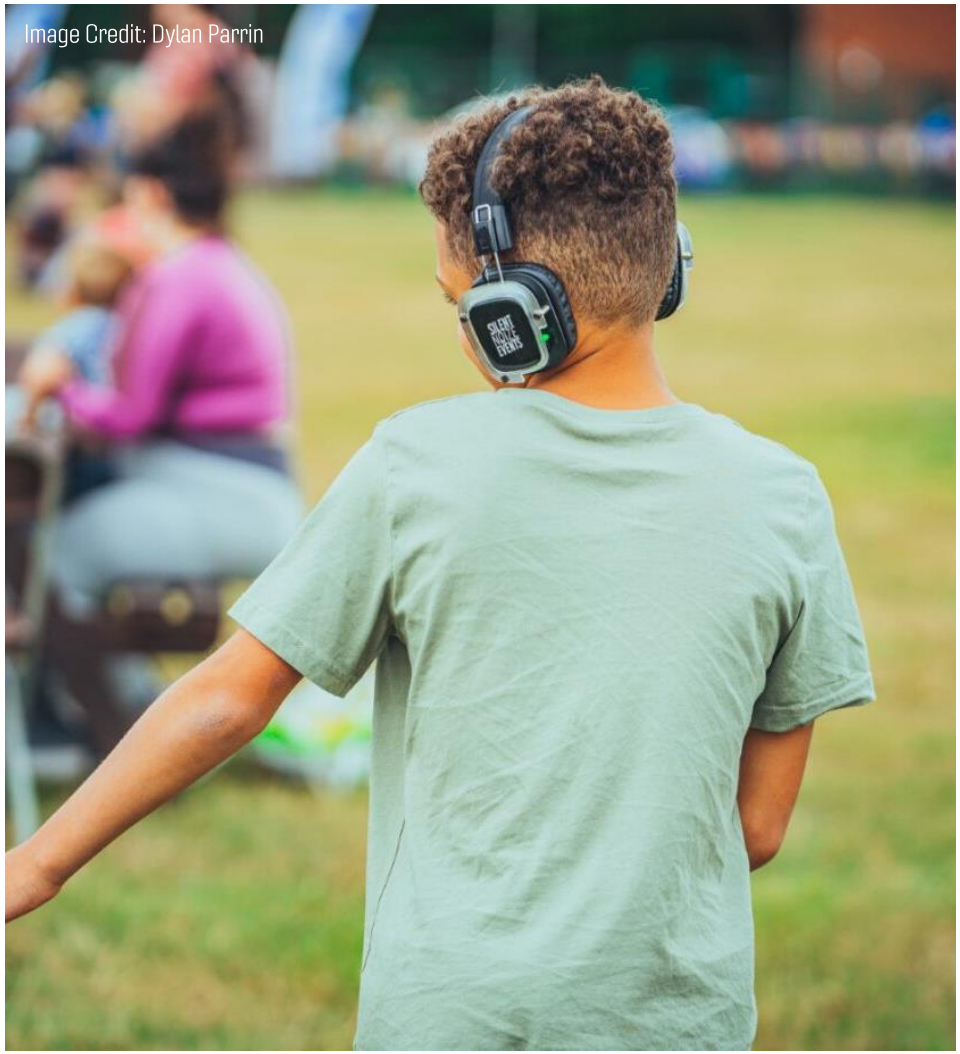


Image Credit: Paul Cochrane

Estimated impact of exposure to cultural activities on wellbeing

Cultural Engagement by time	Unadjusted Coefficient	95% CI	p-value	Adjusted* Coefficient	95% CI	p-value
Constant (none)	23.1	22.8, 23.4	<0.001	26.89	20.4, 33.4	<0.001
Some but less than 1 hour	0.89	0.30, 1.47	0.003	0.75	0.17, 1.34	0.012
1 – 2.5 hours	2.05	1.45, 2.64	<0.001	1.9	1.30, 2.51	<0.001
More than 2.5 hours	2.41	1.87, 2.95	<0.001	2.21	1.67, 2.75	<0.001
		Adjusted R2 = 0.045			Adjusted R2 = 0.152	

*adjusted for: employment status, gender, age, marital status, sexuality, religion, armed forces membership, ethnicity, and index of multiple deprivation. All values (except for p-values) are to 3 significant figures


Image Credit: Jamie Gray

The unadjusted Shortened Warwick Edinburgh Mental Wellbeing Score was 23.1 (95% confidence interval (95% CI) 22.8, 23.4) for those who do not engage in any cultural activity. This increased by 0.89 (95% CI 0.30, 1.47) for those who engaged with less than an hour of culture, and by 2.05 (95% CI 1.45, 2.64) for those who engaged in one to two and half hours of cultural activity. Finally, the mean coefficient of the Shortened Warwick Edinburgh Mental Wellbeing Score in those who engaged with over two and a half hours of culture increased by 2.41 (95% CI 1.87, 2.95).

After adjustment for potential confounders, the Shortened Warwick-Edinburgh Mental Wellbeing Score was 26.89 (95% CI 20.4, 33.4) for those who did not engage with culture. The adjusted mean difference in those who engaged with less than an hour of culture was 0.75 (95% CI 0.17, 1.34) higher when controlling for other variables. For those engaging for between one and two and a half hours, it was 1.9 (95% CI 1.30, 2.51). Finally, for those who engaged with culture for more than two and a half hours the mean score was 2.21 (95% CI 1.67, 2.75) higher.

Within the limitations of the analysis, the results of the adjusted and unadjusted regression models demonstrate a positive correlation between engagement with culture and an increase in wellbeing scores.

Although, all these results for both models were statistically significant, however the adjusted R2 for both the unadjusted and adjusted models was extremely low at 4.5% and 15.2% respectively. This indicates that there is high variability between the dependent variable (in this case SWEMWEBS) and the dependent variables. This is likely a product of sample size and indicates that it is difficult to predict the outcome variable reliably. The cross-sectional methodology of the Coventry Household Survey is limited to describing correlative effects and is also liable to reverse causality even after adjustment for potential confounders.


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