

Model Answer for Quantitative Results Write-up Two – Multiple Regression

Results

The aim of the research was to explore whether the Theory of Planned Behaviour (TPB; Ajzen, 1991) was a useful predictor of people's intentions to have the seasonal influenza vaccination. The research also aimed to explore whether core demographic variables could predict seasonal influenza vaccination uptake in the sample. Data was collected on gender, age, education level, and the variables of the TPB: Attitudes, Intentions, Subjective Norm, and Perceived Behavioural Control (PBC). The questions on the TPB questionnaire were specifically adapted in order to reflect responses in relation towards the uptake of the seasonal influenza vaccination.

The intentions section was composed of three questions, with higher scores indicating a more likely intention to complete the behaviour in question. The attitude section was composed of five questions, with higher scores indicating a more positive attitude to the behaviour in question. The subjective norm section was composed of three questions, with higher scores indicating a feeling of greater social pressure to engage in the behaviour in question. Finally, the PBC section was composed of three questions, with higher scores indicating a greater level of control in the decision to complete the behaviour in question. Three items in the questionnaire (two in the attitudes component and one in the PBC component) required reverse coding prior to analysis.

In total, 175 participants completed the TPB questionnaire in relation to uptake of the seasonal influenza vaccination. Prior to any analyses being conducted, data was screened and any errors were cleaned. There were no outliers identified in the sample. Therefore, the analyses were conducted on the total number of participants who completed the questionnaire. Of the sample, 31 participants were male, 142 were female, and two participants chose not to disclose their gender. The participants ranged in age from 20 to 89

Commented [KW1]: Paragraph 1: Brief overview of aims – critical to mention both elements under investigation, i.e., whether constructs of TPB could predict intentions and whether demographics could predict intentions.

Commented [KW2]: Paragraph 2: Brief section on the TPB constructs, indicating what higher scores mean.

Commented [KW3]: Paragraph 3: Info on the sample. Key here was to provide a breakdown of details for all the demographic information. This was important here because the demographics would go on to be used as part of the main analysis.

($M = 48.94$, $SD = 14.84$). Twenty-eight percent reported having a University degree or higher, 17% reported having a college certificate or diploma, 18% reported leaving school before the age of 16, while 17% reported leaving school at 16. Finally, 8% left school at 18, 8% reported “other” for their Education status, and three chose not to disclose their Education status.

The means and standard deviations of the TPB constructs are presented in Table 1.

Scores for each of the TPB constructs could range on the scale between one and seven. The descriptives from the data revealed that for this particular sample, the scores ranged from one to seven for the subjective norms, attitudes, and intentions. Scores for total perceived behavioural control ranged from three to six. Scores for all of the TPB components emerged as relatively average across the sample. The average score for the subjective norms component was somewhat lower than the other components. Also, there was a much lower standard deviation for PBC, which suggests limited discrepancy in the levels of control the sample felt they had in relation to seasonal influenza vaccination uptake.

Table 1

Descriptive statistics for TPB constructs.

	Mean (M)	Standard Deviation (SD)	No. of participants (N)
Intention	4.31	1.58	175
Attitudes	4.40	1.70	175
Subjective norms	3.65	1.75	175
Perceived behavioural control	4.58	.73	175

Inter-correlations between the main measures included in the analysis are presented in

Table 2. As can be seen, intention to have the seasonal flu vaccination was significantly correlated with all three of the TPB constructs, showing that strong intentions were associated with more positive attitudes ($r = 0.54$, $p < 0.001$), high perceptions of personal control ($r =$

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Commented [KW5]: Paragraph 5: A discussion about what the inter-correlations show in relation to the TPB constructs and the demographic relationships with intention. Could also have discussed the correlations between the predictor variables themselves. Corresponding table should be referenced and some values to back-up the points being made was required.

0.46, $p < 0.001$) and strong perceptions of social pressure ($r = 0.57$, $p < 0.001$). Associations between intentions and demographic variables were also examined, however none of these correlations were found to be significant.

Table 2
Inter-correlations between study variables

	2	3	4	5	6	7
1. Intention	0.54***	0.46***	0.57***	0.01	0.10	-0.12
2. Attitudes		0.23**	0.49***	-0.10	0.18*	-0.19*
3. PBC			0.16*	0.12	0.19*	0.01
4. Subjective norms				-0.14*	0.15*	-0.14*
5. Gender					-0.18*	-0.07
6. Age						-0.29***
7. Education						

Note: * $p < .05$, ** $p < .005$, *** $p < .001$

A hierarchical multiple regression analysis was conducted to assess the ability of three constructs of the TPB (attitudes, subjective norms and Perceived Behavioural Control) to predict levels of intentions to have the seasonal flu vaccination in a sample from a doctor's surgery in Swansea during October 2017, after controlling for the influence of gender, age and education level. Therefore, the independent variables were entered into the regression in two blocks; (i) gender, age and education, and (ii) attitudes, subjective norms and PBC. None of the assumptions for conducting a hierarchical multiple regression were violated.

Age, gender and education explained 2% of the variance in intention to have the seasonal influenza vaccination ($r^2 = 0.019$; $F(3,166) = 1.08$, $p = 0.36$), with none of the variables emerging as significant independent predictors (see Table 3). The addition of the three TPB variables in Step 2 resulted in the total variance explained by the model as a whole

Commented [KW6]: Paragraph 6: Details of what went in to the model.

Commented [KW7]: Paragraph 7: Details of the outcome from the analysis with reference to the corresponding table. Ideally the following should have been included in the discussion of the outcome of the analysis:

1. Variance explained by the demographic info
2. Variance explained when TPB constructs added
3. The change in variance

Some of you chose to report the r^2 while some chose to report the adjusted r^2 . Either was fine, as long as there was consistency when reporting the above three variances and that the percentages matched/added-up appropriately. Also, F and significance values would have been the same regardless of which r^2 was reported.

being 53% ($r^2 = 0.525$; $F(6, 163) = 30.00$, $p < 0.0001$). This significantly increased the prediction by 51% (r^2 change = 0.506; F change (3, 163) = 57.82, $p < .0001$).

Table 3
Hierarchical regression analysis for predicting intentions to have the seasonal flu vaccination

Step / predictor	Step 1	Step 2
1. Age	0.07	-0.08
Gender	0.01	0.03
Education	-0.10	-0.04
2. Attitudes		0.28**
Subjective norms		0.38**
PBC		0.35**

Note: * $p < .05$, ** $p < .001$

Given that the addition of the TPB variables did not result in the Beta values for any of the demographic variables to become significant, this would suggest that the demographic variables were not mediated by the TPB variables. Overall and individually, the demographic variables (gender, age, and education) did not make a significant unique contribution to predicting intention to have the seasonal flu vaccine scores. Of the TPB constructs, attitudes, subjective norms, and perceived behavioural control all emerged as significant unique predictors for intentions to have the seasonal flu vaccine ($\beta = 0.28$, $p < .001$, $\beta = 0.38$, $p < .001$, and $\beta = 0.35$, $p < .001$, respectively), with each predicting roughly a third of overall intentions.

In summary, all three TPB constructs materialised as strong predictor variables, with positive attitudes, high levels of social pressures, and high levels of control associating significantly with strong intentions towards having the seasonal flu vaccine. Demographics did not appear to predict uptake of the seasonal flu vaccine in this sample. Future research

Commented [KW8]: Paragraph 8: Discussion of the individual contributions of the variables, including beta values for each.

*Note: in this particular example the beta values for the contribution of the demographics have not been provided. This is because these variables were not found to make a significant contribution to the model (as was found from the outcome of the regression). If these had made a significant contribution, then their beta values would also need to be reported.

Commented [KW9]: Paragraph 9: Overview of what the outcome from the analysis tells us.

may wish to use these findings when designing campaigns to encourage people most in need to take up the flu vaccine.