Qualities of Volunteering and Life Satisfaction: A multiple linear regression model*

Insights from the 2018 Canadian General Social Survey

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Abstract

Volunteering has been linked to many benefits including health, happiness and life satisfaction; however, there is limited research on the precise aspects of volunteering associated with these benefits. In this paper, we investigate how different aspects of volunteering including frequency, reasons and quality of experience in volunteering are correlated with life satisfaction using a multiple linear regression model. We find that among people who volunteer, people who use their skills in their volunteering experience and volunteer at least once a week had higher life satisfaction. Our findings have implications for the general public in making the most out of their volunteer experience.

Keywords: volunteering, life satisfaction, multiple linear regression, canadian general social survey, canada

1 Introduction

Volunteering has been linked to many benefits including health, happiness and life satisfaction (cite literature).

But what specific aspects of volunteering may be related to life satisfaction? In this paper we take a look at the data from the 2018 Canadian General Social Survey on Giving, Volunteering & Participating to investigate this question. Specifically we construct a multiple linear regression model with life satisfaction as our dependent variable, and independent variables for frequency, reasons for volunteering and quality of volunteer experience. We find that among people who volunteer, people who use their skills in their volunteering experience and volunteer at least once a week had higher life satisfaction.

The rest of the paper has the following structure: Section 2 describes the data from the 2018 Canadian General Social Survey on Giving, Volunteering & Participating, Section 3 discusses the multiple linear regression model, Section 4 presents the results of our analysis and Section 5 discusses the findings and limitations.

2 Data

2.1 Data Source

The data is from the 2018 Canadian General Social Survey (GSS) on Giving, Volunteering & Participating. Canada's GSS program conducts independent cross-sectional surveys each year on a specific topic. The

*Code and data are available at: https://github.com/KCtt457/gssvolunteering2018.

main objectives of the program are to gather data on social trends in order to monitor changes in the living conditions and well-being of Canadians and to provide information on specific social policy issues [cite]. The topic for 2018 was Giving, Volunteering & Participating, which was the seventh time data on this topic has been collected at the national level.

2.2 Data Collection and Methodology

Data was collected by Statistics Canada during the period of September 4th to December 28th, 2018. The target population included individuals 15 years and over in Canada, excluding institutionalized persons and residents of the Yukon, Northwest Territories, and Nunavut. For sampling, the ten provinces were divided into strata by geographical area. The survey frame was developed by combining lists of telephone numbers from various sources and lists of dwellings from the Address Register. Each record in the survey frame was assigned a stratum within its province. Households were then randomly sampled within each stratum and a single respondent from each household was chosen using an age-order method to either complete an electronic questionnaire or telephone interview.

Due the low prevalence of volunteers in the population, rejective sampling was also used to obtain a larger number of respondents in the population of interest which is volunteers. There were 16,149 respondents in the survey, excluding 'rejected' respondents.

2.3 Key Features

There are 956 variables and 16,149 observations in the dataset.

The variables include basic demographic information, such as age, gender, marital status, province, as well as depict the topics of volunteer specifics and details, reasons for volunteering or not volunteering, quality and history of volunteering, financial giving and youth experiences.

A subset of the variables is shown in table 1.

Since we are interested in the relationship between volunteering and life satisfaction, we do some data exploration of these features. Figure 1 shows the number of volunteers and non-volunteers in the sample.

Figure 1: Number of Volunteers and Non-Volunteers in the Sample

Table 1: Some key features

Age group of respondent	Gender	Volunteer Flag	Number of Organizations	Volunteer Frequency	Reasons for Volunteering-To use skills	Quality of Volunteer Experience-Community Contribution
65 years and over	Male	Non-volunteer				
65 years and over	Male	Volunteer	1	At least once a week	Yes	Agree
65 years and over	Female	Volunteer	1	At least once a week	Yes	Agree
65 years and over	Male	Non-volunteer				
65 years and over	Male	Volunteer	2	At least once a week	Yes	Strongly agree
65 years and over	Male	Non-volunteer				
65 years and over	Female	Non-volunteer				
65 years and over	Male	Volunteer	3	At least three or four times in the past 12 months	Yes	Agree
65 years and over	Male	Volunteer	5	Daily or almost daily	Yes	Strongly agree
65 years and over	Female	Non-volunteer				

There is about a 50-50 split between the volunteers and non-volunteers in our sample. However, this should be looked at with caution when making generalizations to the wider population given that the data was obtained via rejective sampling.

Figure 2 shows life satisfaction by volunteer status. Life satisfaction was rated on a scale from 0 to 10, where 0 means very disatisfied with life, and 10 means very satisfied with life. Overall, the majority of respondents had relatively high satisfaction ratings about 7-10. It can clearly be seen from the graph that in the lower life satisfaction ratings 0-6, the percentage of non-volunteers was greater than volunteers. Interestingly at a rating of 7 it appears to be about an even split, and for higher life satisfaction ratings the percentage of volunteers is greater than the percentage of non-volunteers.

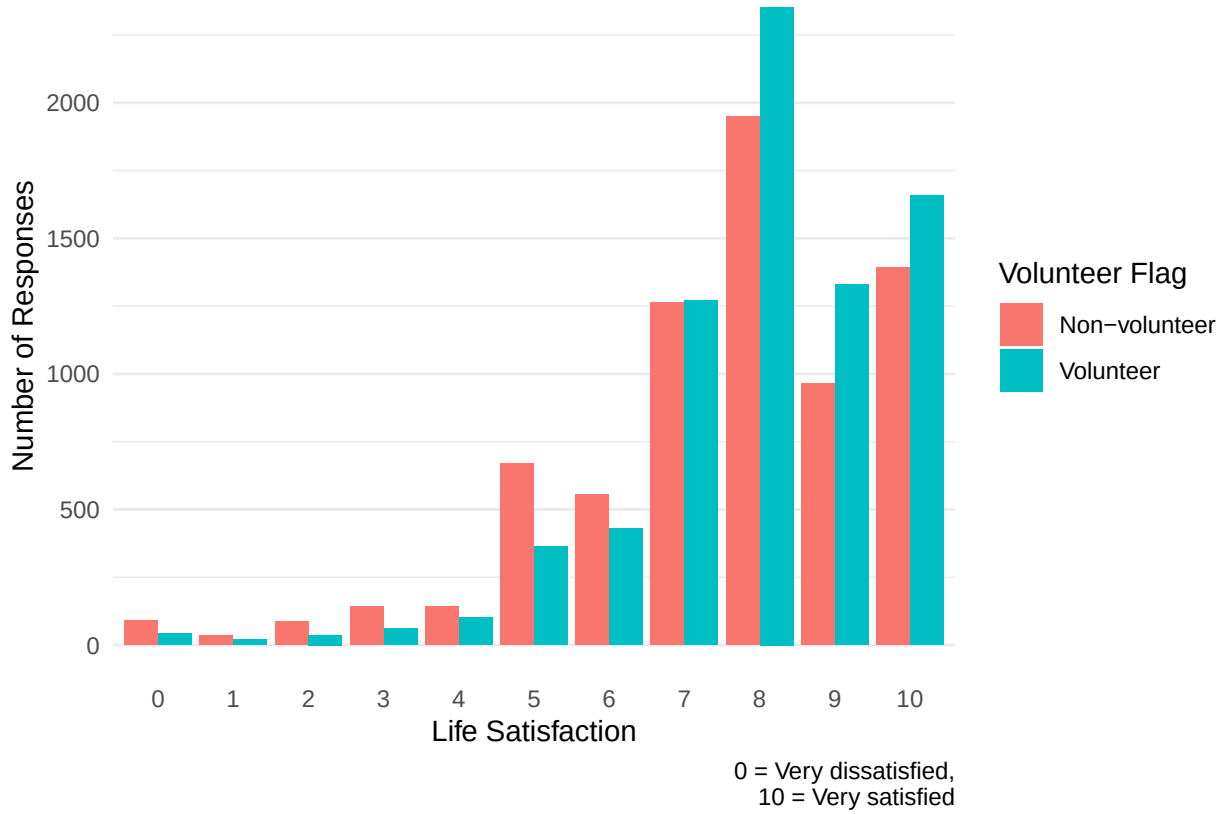

Figure 2: Life satisfaction by Volunteer Status

Therefore this brief glimpse of data hints at a relationship between being a volunteer and life satisfaction.

We would also like to explore more of the characteristics of volunteering that may be involved in this relationship. We will restrict our sample to volunteers only when exploring the characteristics of volunteering, since it is not applicable to non-volunteers. It now begs the question, which aspects of volunteering to investigate? The data includes dozens of variables on the types of organizations and types of volunteer activities respondents are involved in. The large number of variables would thus make it difficult to fit to a concise statistical model, and since a person may be involved in multiple organizations and activities, it may also be difficult to measure the individual effects of certain activities.

Some features we could consider instead include number of organizations, frequency of volunteering, and different benefits experienced from volunteering, which are the variables labelled 'Quality of the Volunteering Experience' in the dataset. The different 'qualities' which are rated on a 5-degree scale from Strongly disagree to Strongly agree include networking, job opportunities, community contribution, health improved,

meaningful involvement and use of skills and experience. We convert these to binary variables with 'Yes' if they agreed to experiencing the benefit and 'No' otherwise for conciseness.

Another idea to consider are the reasons people choose to volunteer and if they get what they wanted out of their volunteer experience, that is, if their volunteer experience fulfilling. We create a new variable for whether or not the volunteer experience fulfills their reasons for volunteering by taking the variables for the stated reasons for volunteering and matching them to the variables for the quality of their experience. So for example if an individual stated that a reason for volunteering was to network and they agreed that they were able to network from their volunteer experience, then this variable would be set to 'YES', otherwise 'NO'. Since there are multiple reasons for volunteering, we will set the variable to 'YES' whenever at least one of the reasons are satisfied. Plot A of Figure 3 shows the reasons people volunteer we matched to the quality of their experience and Plot B shows the new variable we created.

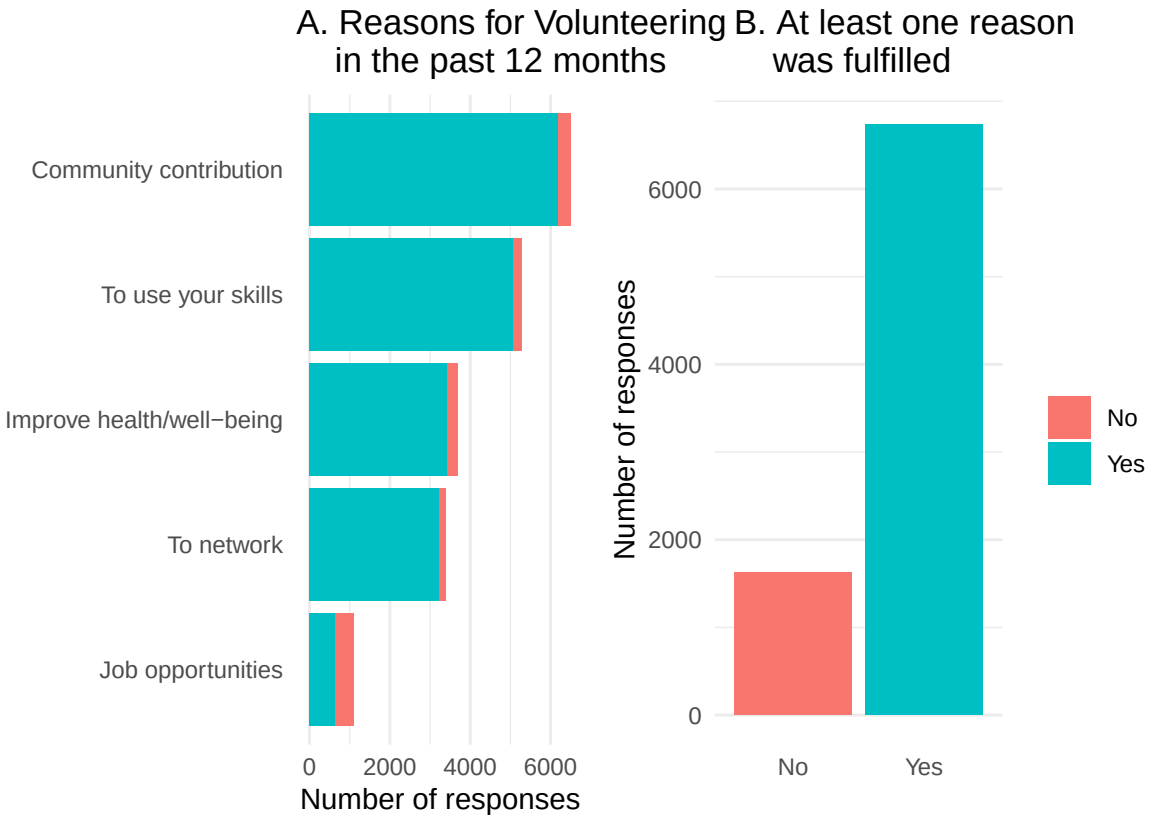

Figure 3: Reasons for Volunteering that were fulfilled

R (R Core Team 2020) and the R packages `tidyverse`(Wickham et al. 2019) and kableExtra (Zhu 2021) were used for data processing and to make the plots and tables.

2.4 Strengths and Weaknesses

Some strengths of the data include that it is a large sample, it explores multiple different variables on the topic of interest which is giving, volunteering and participating in detail and also although volunteers were the subject of interest, data on non-volunteers were also included such as their reasons for not volunteering or other similar activities (such as helping at home) that they may undertake instead.

3 Model

3.1 Model 1: Life Satisfaction and Volunteer Flag

For our first model, we are interested in how volunteer status is correlated with life satisfaction. We construct a multiple linear regression model with life satisfaction as the independent variable, and for the dependent variables we use volunteer flag and also various socio-demographic variables including gender, age, education level, marital status, if there are children at home, employment status and family income as these have been found to be relevant in previous research [cite]. The model is show in (1) follows:

$$life\_satisfaction = volunteer + gender + age + education + married + children\_at\_home + employment\_status + income\_lev \tag{1}$$

3.2 Model 2: Life Satisfaction and Volunteer Characteristics

For our second model, we construct a multiple linear regression model to investigate what specific characteristics of volunteering might be correlated with life satisfaction. For this model, we restrict the datapoints to volunteers only (since non-volunteers do not have volunteer characteristics). Our independent variable is life satisfaction again, and the dependent variables include number of volunteer organizations, volunteer frequency and if the volunteer experience fulfills their reasons for volunteering. The model is shown in (2) follows:

$$life\_satisfaction = num\_organizations + frequency + fulfilling + quality \tag{2}$$

4 Results

Table 2 shows the results of our first model with volunteer status and the socio-demographic variables. The baseline represents the life satisfaction score of male, unmarried and employed Canadians who do not volunteer, are in the age range 25-34 years, have a highschool degree, no children at home and have a family income of $50,000 to $74,999. Recall that life satisfaction is rated on a scale of 0-10. Using a significance level of 0.05, significant variables that were associated with an increase in life satisfaction in descending order of largest coefficient include being married, volunteering, 65 years or older, earning an income of $125,000 and more, and being female. Being married vs not married from the baseline resulted in an increase of 0.42 points in life satisfaction and being a volunteer increased life satisfaction by 0.36 points.

Significant variables associated with a decrease in life satisfaction include being not employed, having a family income of less than $50,000, having less than a highschool degree, being 35-54 years of age, and having children at home. Being unemployed vs employed resulted in a decrease of 0.85 points from the baseline whereas having children at home only had a small negative effect of 0.09 points decrease on life satisfaction.

Table 3 shows the results of our second model which considers the characteristics of volunteering. The baseline here represents individuals that volunteer at least once a month, have not had any of their reasons fulfilled and experienced none of the listed 5 benefits of volunteering. Making a community contribution has an estimated 0.42 point increase in life satisfaction score and being meaningfully involved in the organization has a 0.32 increase in life satisfaction score from the baseline. Having benefited from job opportunities and having one's reasons fulfilled by the volunteer experience were associated with 0.21 and 0.31 point decreases respectfully.

Table 2: Estimated Coefficients for predictors of Model 1

		Estimate	p-value
Baseline Life Satisfaction Score		7.41	0.00e+00
Volunteer		0.36	1.71e-30
Female		0.19	7.66e-10
Age Group	15-24 years	0.06	5.01e-01
	35-44 years	-0.17	5.25e-03
	45-54 years	-0.29	1.14e-06
	55-64 years	-0.07	2.31e-01
	65 years and over	0.34	7.29e-08
Education	Less than High School	-0.12	3.48e-02
	Post-secondary diploma	0.00	9.65e-01
	University Diploma	-0.02	7.20e-01
Married		0.42	2.99e-32
Children at home		-0.09	3.05e-02
Employment Status	Not in labour force	-0.19	5.24e-06
	Unable to determine	-0.33	1.64e-03
	Unemployed	-0.85	1.62e-16
Family income	Less than $25,000	-0.42	9.40e-12
	$25,000 to $49,999	-0.26	1.08e-06
	$75,000 to $99,999	-0.02	6.96e-01
	$100,000 to $124,999	0.10	1.11e-01
	$125,000 and more	0.27	1.13e-07

Table 3: Estimated Coefficients for predictors of Model 2

		Estimate	p-value
Baseline Life Satisfaction Score		7.60	0.00e+00
Number of Organizations		0.05	1.74e-03
Frequency	At least once a week	-0.02	7.30e-01
	At least three or four times in the past 12 months	-0.19	1.16e-03
	Daily or almost daily	0.12	1.43e-01
	Once or twice in the past 12 months	-0.12	7.61e-02
Fulfilling		-0.31	1.91e-03
Networking		0.01	8.80e-01
Job opportunities		-0.21	4.60e-03
Community Contribution		0.42	1.10e-07
Improved Health		-0.05	2.32e-01
Meaningful Involvement		0.32	3.46e-06
Use Skills and Experience		0.13	7.67e-02

5 Discussion

5.1 Volunteering increases life satisfaction

From our first model, we see that taking into account various socio-demographic variables, being a volunteer was still significant in predicting life satisfaction, and was positively correlated with it. In fact, it was the second highest predictor after marriage. This aligns with previous studies.

5.2 Community and Meaning: the secret to life satisfaction?

From the second model, having a meaningful involvement in the volunteer organization and contributing to the community were the significant predictors of life satisfaction among volunteers.

5.3 Third discussion point

5.4 Weaknesses and next steps

A limitation of this study is that many of the variables used in the analysis are subjective responses of the participants so they may not provide the most accurate true measure of certain variables. For example, there was only one question on life satisfaction in the survey where participants rated for themselves their life satisfaction on a scale of 0-10. However, there exist better measures of life satisfaction such as the Satisfaction with Life Scale (SWLS) [cite].

Appendix

A Additional details

References

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