Happiness in Post COVID-19 America

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Abstract

Happiness and subjective well-being are central themes in social sciences research, particularly in the context of post-pandemic recovery. Previous research abroad has identified a number of demographic, social, and behavioral variables as central to happiness. This study aims to investigate how known demographic, social, and behavioral variables impact individuals' self-reported happiness in the post COVID-19 United States. Data from the National Wellbeing Survey were analyzed using descriptive, bivariate, and linear regression statistical models to identify effect sizes and significance of previously identified covariates. Results were consistent across the descriptive, bivariate, and linear regression analyses, indicating that being male, level of education, household income, frequency of personal conversations, being married, hours of sleep, and satisfaction at work have a positive relationship with happiness, while age and religiosity have a negative relationship. This research supports existing findings and introduces an interesting question on the role of religion on happiness in the US.

Introduction

Happiness and subjective well-being are a major topic in social sciences research and popular science. This study aims to investigate how known demographic, social, and behavioral variables impact individuals' self-reported happiness in the post COVID-19 era. While there have been many studies on happiness conducted outside of the United States on this subject, post-pandemic happiness in the US remains understudied. These foreign studies do present a number of

interesting variables to consider. In Shenzhen, China, Kerstetter et. al (2022) found in interviews that income, satisfaction with work, and frequent social interactions all contribute to happiness. Sun et. al (2016) found that happiness decreases with age, marriage and education increase happiness, and that gender effects are mixed. Jiang et. al (2022) found in a study of Chinese university students that there is a strong positive effect of hours slept per night on happiness, and Ngamaba et. al (2018) found wide variance in the effects of religious belief on happiness. The objective of this study is to take variables known to affect subjective wellbeing (i.e., happiness) from the literature and test them with a post-pandemic dataset on wellbeing.

Methods

Sample Selection and Data

National Wellbeing Survey (NWS) data were used for this study. The National Wellbeing Survey was administered from February 2021 to May 2021, using a Qualtrics Panel online cross-sectional survey. Analysis was limited to the selected variables described below. Respondents with answers with a code greater than 95, indicating a Don't Know / Not Applicable response in the selected variables were eliminated to make the data whole. After data cleaning, 2,376 responses remained in the dataset, from 4014 responses in the original data.

Outcome Variable

The primary outcome variable was happiness, as measured by the first question in the NWS. The responses were reverse-coded for ease of analysis and interpretation.

Key Covariates

The key covariates in the regression analysis can be grouped in three categories: demographics, social factors, and a behavioral factor. Demographic covariates include age, sex, household income, and education. Social support factors include availability of social support, importance of religion, satisfaction with work, and marital status. The behavioral factor was hours of sleep. Sex and marital status were recoded as the dummy variables "male dummy variable" and "marriage dummy variable", respectively. For the male dummy variable, males were coded as 1, while women, nonbinary, and gender-nonconforming groups were coded as 2. For the marriage dummy variable, currently married was coded as 1, while unmarried, divorced, cohabitating, widowed, and separated were coded as 0.

Analysis

Descriptive statistics were calculated for all covariates. Pearson's correlation was calculated for all covariates and one-way analysis-of-variance was performed for categorical covariates. A linear regression model was used to identify the strength and significance of each covariate. Analysis was performed in R, and all project code and data can be found on Github.

Results

Descriptive and Bivariate Analysis

Table 1 shows the means and the Pearson's correlation matrix of main covariates. All covariates are significantly correlated with each other, with the exception of the male dummy variable with sleep hours. Most importantly, the outcome variable, happiness, is significantly correlated with all covariates. It is positively correlated with personal conversations, household income,

education, satisfaction with work, hours of sleep, the male dummy covariate, and the marriage dummy covariate. Notably, it is negatively correlated with religious importance.

Table 1 Means and Pearson's Correlation Coefficient Matrix of Main Covariates

COVARIATE	MEAN	AGE	HAPPY	PERSONAL	HHINC	EDUC	RELIG_IMP	SAT_WORK	SLEEPHRS	MARSTAT_DUMMY	MALE_DUMMY
AGE	0.11	1.00									
HAPPY	0.18	-0.11	1.00								
PERSONAL	0.15	-0.10	0.20	1.00							
HHINC	0.25	0.14	0.22	0.19	1.00						
EDUC	0.23	0.10	0.19	0.17	0.51	1.00					
RELIG_IMP	0.02	-0.05	-0.20	-0.11	-0.05	-0.05	1.00				
SAT_WORK	0.18	0.06	0.23	0.11	0.20	0.17	-0.05	1.00			
SLEEPHRS	0.12	-0.11	0.21	0.09	0.06	0.06	-0.07	0.08	1.00		
MARSTAT_DUMMY	0.22	0.24	0.24	0.11	0.48	0.34	-0.17	0.18	0.05	1.00	
MALE_DUMMY	0.11	0.08	0.13	0.05	0.31	0.21	0.04	0.11	0.02ns	0.20	1.00

*All correlations are significant at $p<.05$ level unless marked with ns; ns indicates a not-significant result

The next analysis shows the effect of being a male, married, or having a higher education level on happiness. Table 2 shows the results of one-way analysis-of-variance (ANOVA) tests for the categorical covariates (i.e., MALE_DUMMY.) All tested covariables show significant differences, with marriage status, household income, and work satisfaction delivering the greatest differences in happiness.

Table 2 One-way analysis-of-variance (ANOVA) tests for the categorical covariates (male_dummy, marriage_dummy, education) on happiness

Covariate	df	sumsq	meansq	F-value	p.value
MALE_DUMMY	1	22.74	22.74	42.95	<0.001
MARSTAT_DUMMY	1	70.94	70.94	139.31	<0.001
EDUC	1	47.49	47.49	91.48	<0.001

Linear Regression Model

Table 3 shows the results of a linear regression model. Simple linear regression was used to test if age, the male dummy covariate, education, household income, the marriage dummy variable, religious importance, satisfaction at work, and hours of sleep significantly predicted happiness. The overall regression was statistically significant (Adjusted R-squared = 0.1974, F(df regression, df) = [65.89], p < 0.001.)

It was found that age, male, education, and household income significantly predicted happiness (B *age*= -.01, B *male*= .10, B *educ*= .03, B *hhinc*= .01, $p < 0.001$). The results suggest that age has a negative effect on happiness, while being a male, married and having a higher education level increases one's happiness. Interestingly, religious importance has a negative effect on happiness, while the male dummy variable, education, household income, personal conversations, work satisfaction, and hours of sleep had a positive effect.

For social support factors, the model showed that personal conversations and work satisfaction had a positive effect on happiness (B *personal* = .08, B *relig_imp*= *.01*, B *sat_work*= *.09*, $p < 0.001$.) The behavioral factor, hours of sleep, had a positive effect on happiness (B *sleephrs* = .05, $p < 0.001$)

Table 3: Linear regression model showing effect of covariates on happiness

	Unstandardized			
Covariate	Estimate	std.error	t-value	p.value

Demographic				
AGE	-0.01	0.00	-8.18	<0.001
MALE_DUMMY	0.10	0.03	3.59	<0.001
EDUC	0.03	0.01	2.60	<0.001
HHINC	0.01	0.01	2.63	<0.001
Social Support Factors				
PERSONAL	0.08	0.02	4.92	<0.001
RELIG_IMP	-0.11	0.01	-8.12	<0.001
SAT_WORK	0.09	0.01	8.35	<0.001
MARSTAT_DUMMY	0.20	0.03	6.29	<0.001
Behavioral Factor				
SLEEPHRS	0.05	0.01	7.76	<0.001

Note: Residual standard error: 0.6577 on 2366 degrees of freedom

Multiple R-squared: 0.2004, Adjusted R-squared: 0.1974

F-statistic: 65.89 on 9 and 2366 DF, p-value: < 2.2e-16

Discussion and Conclusion

In the descriptive analysis, all covariates were shown as having a significant correlation with each other, with the exception of the male dummy variable with sleep hours. This is consistent with the literature, as all covariates were selected due to previous findings showing their effect on happiness. A notable deviation from the literature, however, is the negative relationship happiness has with religious importance. While the evidence in general happiness surveys is mixed (Sun et. al, 2016, Ngamaba et. al, 2018), it has shown that Protestant and Catholic Christians, the two largest religious groups in the US, have greater self-reported levels of happiness. This result merits further investigation.

In the bivariate analysis, categorical covariates were targeted for analysis. These findings also support the literature, supporting the conclusion that marriage, education and being a male increase happiness. Of note, the evidence for increased happiness in self-identified males is limited and highly debated; this finding adds to the conversation. The linear regression supports the findings in the literature and in the descriptive and bivariate analysis; the diversion from the literature regarding religious belief continues, and the negative effect of age on happiness also persists.

This study has a number of limitations. First, the methodological decision to eliminate all Don't Know/Not Applicable answers, instead of using a mean data technique, limits the generalizability of the data. Additionally, the use of the National Wellbeing Survey means that survey's limitations apply to this study, primarily the oversampling found in the NWS of rural communities. (Monnat et. al, 2023)

The robustness of results across statistical analyses, along with the large sample size, constitutes a major strength of this study. This study demonstrates the need for further research into happiness in the post-pandemic United States, especially into the role of religion in American well-being.

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Appendix

All code and data can be found on github at the following link:

https://github.com/leo-goesger/Leo-Shih-RMGH-Quantitative-Final