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Well-Being Disparities During the COVID-19 Outbreak: Evidence From Malta

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As governments struggled to contain the COVID-19 pandemic and its economic fallout, individuals across the globe experienced considerable impacts on their lifestyles and well-being. This study examines these impacts in Malta, where COVID-19 first broke out in early March 2020. Within days, government authorities had instituted a range of restrictions, culminating in lockdown for older persons. A survey undertaken toward the end of the month (1,821 respondents) yielded the necessary data to estimate an econometric model of subjective well-being. This sheds light on the considerable impact that COVID-19 had on self-assessed happiness and life satisfaction and on the resulting disparities that arose. Significant effects were experienced by those who were exposed to or concerned about the effects of COVID-19. A significant and negative association was also found to exist between old age and happiness. Working from home and having a university degree were found to be positively associated with happiness. Typically important positive predictors of well-being, such as social interaction and engagement in outdoor activities, failed to predict well-being at all during the COVID-19 outbreak in Malta. On the other hand, engaging in sport, artistic work or voluntary work continued to be associated with higher levels of self-assessed happiness and life satisfaction. These findings yield insights on the broader impacts caused by the COVID-19 pandemic.

Keywords: COVID-19, subjective well-being, Malta, happiness, life satisfaction

The COVID-19 pandemic has had far-reaching effects on a wide range of phenomena that are profoundly relevant to societal well-being. While governments across the globe focused on containing the COVID-19 pandemic and its economic fallout, individuals experienced considerable impacts on their lifestyles (Briguglio & Moncada, 2020; Elgin et al., 2020; Greyling et al., 2021; Zhang et al., 2020). In what follows, the effects of the pandemic on well-being are examined using unique data ($N = 1,821$), collected during the third week of the coronavirus outbreak in Malta. A densely populated Mediterranean island state, erstwhile characterized by a thriving economy and high levels of social interaction, Malta had a generous COVID-19 economic policy response and the most trusted health-care system in the European Union (EU), (Elgin et al., 2020; Eurofound, 2020). Yet, as in many other countries, disparities in well-being received less attention. The study conceptualizes and estimates a model of well-being with a view to testing the effects of exposure to the pandemic. The findings contribute to the literature on well-being during traumatic events and provide insights on identifying and addressing well-being disparities during such crises.

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Conceptualizing Well-Being

A review of the relevant literature on the determinants of well-being informs the estimation model and a priori hypotheses. This study follows others that measure well-being through individuals' subjective assessment of happiness and life satisfaction on an ordinal scale (Blanchflower, 2009; Eurostat, 2019; Helliwell et al., 2019; Ishino et al., 2012). The key distinction between these two measures is that although subjective reporting of happiness constitutes a measurement of affect or pleasantness of emotions at a specific moment or state of life, the subjective evaluation of life satisfaction involves a more cognitive process of evaluation across a time span (Veenhoven, 1984). Self-assessment measures of life satisfaction also tend to be less volatile and more likely to be predicted by life circumstances (Organisation for Economic Cooperation and Development [OECD], 2013).

Well-being, measured in this way, can be modeled as a function of demographics and life circumstances. Foremost among the most important predictors is health. Good physical health, mental health, and even physical activity tend to predict higher levels of well-being (Zhang & Chen, 2019). In contrast, the inability to sleep tends to have a negative association (Blanchflower, 2009).

The impact of income and employment on well-being has also received extensive attention in economic studies. The headline finding here is that once a level of sufficient income is reached, it is *relative* income that contributes explanatory power (Easterlin, 2003). Moreover, as documented in the study by Blanchflower (2009), unemployment has strong and long-lasting effects on well-being (Lucas et al., 2004). The loss of *voluntary* work can also be detrimental to happiness (Meier & Stutzer, 2008).

In terms of contextual determinants, social and institutional trust are typically found to be positive determinants of well-being (Helliwell, 2003). Similarly, higher support from relatives and friends tends to predict higher well-being, particularly at times of financial losses (North et al., 2008). In contrast, losing family members has been found to have short-term and long-term effects on happiness (Moor & de Graaf, 2016). Other important determinants include cultural participation (Grossi et al., 2012), connectedness with nature (Capaldi et al., 2014), and religious or spiritual activity (Easterlin & Cardeña, 1998; Inglehart, 2010).

Finally, demographics and personality traits also help explain diversity in self-reported well-being. Wellbeing tends to be U-shaped across the life cycle, with the lowest levels being observed toward middle age (Blanchflower & Oswald, 2008). Men seem to report higher levels of well-being than women (Stevenson & Wolfers, 2009). Single people and divorcees tend to report lower levels of well-being than others (Waite et al., 2009). Years of schooling tend to increase self-assessed life satisfaction (Oreopoulos, 2007). Personality effects, typically measured through the Big Five personality traits, are also important predictors of self-reported well-being and can interact with shocks to create diverse effects (Diener & Lucas, 1999; Fiske, 1949). Emotional stability and extraversion, in particular, are consistently found to be positively correlated with happiness and life satisfaction.

Well-Being During Traumatic Events

Within the literature on the determinants of well-being, a specific body of work focuses on well-being during crises—ranging from natural to economic. When Hurricane Katrina hit the United States in 2005, the largest dips in self-reported happiness were reported among those who experienced the strongest impacts (Kimball et al., 2006). Following floods, a negative impact was observed on self-reported life satisfaction in 16 European countries (Luechinger & Raschky, 2009). More recently, following Hurricanes Harvey and Maria in Texas and Puerto Rico, Powell et al. (2020) reported high levels of mental distress among healthcare and social service workers. But the findings are not unequivocal. In the Great East earthquake in 2011, Japanese people experienced a counterintuitive *increase* in happiness. This was attributed to an increase in altruism following this disaster (Ishino et al., 2012). Similarly, in Japan, analysis of survivors of the 1995 earthquake revealed that victims of the earthquake in Hanshin-Awaji were happier than nonvictims. Declining aspirations and social trust may have contributed to this outcome (Yamamura, 2012).

Studies that are particularly close to this work are those that assess the impact of pandemics. During the SARS outbreak, quarantine periods were the strongest predictor of stress disorder among hospital staff in East Taiwan. Symptoms included exhaustion, anxiety, insomnia, lack of concentration, and detachment from others (Bai et al., 2004). In assessing quarantine effects in Canada, higher levels of depression were felt among those with lower incomes (Hawryluck et al., 2004). A recent study that focuses on the effects of the COVID-19 outbreak itself reported the results of a survey (N = 369) conducted 1 month into the COVID-19 outbreak in China. The key finding was that individuals who stopped working suffered worse mental and physical health problems. Life satisfaction also responded to the severity of the outbreak in one's home city (Zhang et al., 2020). Fetzer et al. (2020) ran two surveys in the United States in March and found concern about contagiousness and mortality from the COVID-19 virus to be linked with higher levels of anxiety. In South Africa, New Zealand, and Australia alike, stricter lockdown regulations were associated with declining happiness (Greyling et al., 2021).

Materials and Method

Context

Our study takes place in Malta, a small Island State in the EU. With a population of around half a million residing in 316 km^2, Malta is one of the most densely populated countries in the world. Prior to the outbreak of the COVID-19 pandemic, the Maltese economy had experienced a period of unprecedented growth, with relatively stable prices and an unemployment rate lower than 4% (Central Bank of Malta, 2020). In the *World Happiness Report*, Malta ranked 18th. in the world on the Life Satisfaction ladder (Helliwell et al., 2019). Maltese people enjoyed one of the longest life expectancies in the EU and three quarters of the Maltese population reported being in good health in 2017. Cardiovascular diseases remained the leading cause of death, followed by cancer, with a rising disease burden from diabetes and mental health issues (Organisation for Economic Cooperation and Development [OECD]/European Observatory on Health Systems & Policies, 2019). Strong ties with one's family and community characterized life prior to COVID-19 in Malta. The vast majority of Maltese people (83%) met their families at least once a week, and over half (53%) met their friends at least as often (National Statistics Office, Malta, 2017). Although 55% attended religious services weekly, active engagement in cultural activities, exercise and voluntary work was less common (National Statistics Office, Malta, 2017).

Swabbing and testing for COVID-19 were in place a week ahead of the documentation of the first case in Malta. Quarantine had also been made mandatory for people returning from certain countries. Once the first case was documented (on March 7, 2020), containment measures unfolded rapidly (Briguglio & Moncada, 2020). On March 12, schools, childcare centers and day centers for the elderly were closed, and all religious functions and masses, outdoor football games and political activities were cancelled. On March 20, passenger flights were halted. Two days later, all nonessential retail and services outlets were closed, and organized gatherings were banned. From March 28 onward, people over 65 years of age (almost a fifth of the population), pregnant women and people with certain chronic conditions were ordered to stay indoors. By the end of March, the cumulative number of tests had risen to 6,934. These measures contributed to a relatively flat epidemic curve in the ensuing months (Dong et al., 2020). Yet, isolation, social distancing, lockdowns, quarantines, and the ensuing loss of

income and employment led to significant lifestyle changes among the Maltese people.

Model and Hypotheses

Given the insights from the literature, and within the context described, a conceptual model of well-being can be specified as follows:

$$Y_i = X_i\beta + Z_i\alpha + u_i$$

where *i* indexes the individual; Y is well-being captured by both self-reported happiness and self-reported life satisfaction; X is a vector of covariates capturing characteristics and determinants that are known to be relevant to well-being; Z captures potential exposure and concern about the pandemic; and u is a stochastic error term.

The null hypothesis (H_0) is that there is no difference in well-being or its predictors following the outbreak of COVID-19. This is tested against the following alternative hypotheses:

Hypothesis 1: Mean well-being declined during the COVID-19 outbreak.

Hypothesis 2: Well-being declined more among those exposed to/concerned about COVID-19 (â).

Hypothesis 3: The COVID-19 outbreak changed the well-being equation itself, impacting the coefficients that predict well-being and deepening disparities among impacted demographics (β).

Survey Instrument

The study used a tailor-made questionnaire designed for online distribution and self-completion by respondents.[1] To avoid priming effects, well-being questions were presented first. Both measures of well-being were measured on a 0-to-10 Cantril ladder and utilized commonly used wording to allow comparison with secondary data (Eurostat, 2019). Respondents were asked, "Right now, on a scale from 0–10, where 0 is not at all and 10 is very much, how happy do you feel?" and "Right now, on a scale from 0–10, where 0 is not at all and 10 is very much, how satisfied do you feel with your life?" Respondents were then asked about their financial situation. The response options included "struggling to cope," "able to make ends meet," and "able to save money." The questionnaire also enquired about the frequency with which respondents had engaged in a host of activities in the previous 7 days. These included artistic activities, spiritual/religious activities, going by the sea/nature, sleeping well, physical activity, voluntary work, meeting friends/family, and doing paid work from home. For all such activities, the response options were limited to "*never*," "*one to three days*," "*four to six days*," and "*every day*." Respondents were then asked to think back about life before the pandemic hit Malta. They were presented with the same block of questions about happiness, life satisfaction, income, and lifestyle activities and asked to provide answers using the same scales. This generated a set of variables pertaining to life prior to the outbreak of COVID-19 in Malta. Given that recall may be influenced by evaluative processes (Gilbert, 2006; OECD, 2013), the survey responses were gathered within just 3 weeks of the start of the pandemic. As with the self-assessment of present happiness and life satisfaction, responses may include some noise but the results are not expected to be systematically over- or understated.

To gather data on COVID-19 worries and effects, participants were asked to indicate whether they had been exposed to a series of possible direct effects of the pandemic, such as cancelled events/trips, being in quarantine, being swabbed or infected, experiencing poor mental health, losing a job, losing money, or losing a family member/friend. They were also asked to indicate their level of worry about experiencing such effects in the future. These data were used to construct composite indicators of exposure and worry. Respondents were further asked about their education level, job status, relationship status, children, nationality, gender, age, trust in government, and health. The latter included physical conditions (such as respiratory disease, heart disease, hypertension, diabetes, cancer, or suppressed immunity) as well as mental health issues (such as anxiety or depression). A final set of questions gathered data on personality on a 7-point Likert scale (Gosling et al., 2003).

Data

A total of 1,821 complete responses were garnered in the space of 1 week, starting March 23, 2020 and ending March 30, 2020. Table 1 summarizes the data set. The variables capturing well-being during the outbreak are happiness ($M = 4.74$, $SD = 2.42$) and lifesat ($M = 5.61$, $SD = 2.51$). Table 1 also reports the data pertaining to life *prior to* the outbreak (denoted by "P-"), including recalled happiness (P-happiness, $M = 7.47$, $SD = 1.80$) and life satisfaction (P-lifesat, $M = 7.52$, $SD = 1.83$). Pairwise correlation analysis (at the 95% confidence interval [CI]) revealed expected relationships. For instance, having tertiary education is significantly associated with having a better financial situation, older respondents are more likely to attend religious activities, and self-reported happiness and life satisfaction are negatively linked with illness and positively linked with income *inter alia*. An examination of the data also sheds light on the differences in lifestyles caused by the outbreak of COVID-19. Based on a comparison of reported frequencies during the outbreak with those recalled prior to the outbreak, Figure 1 identifies the percentage of respondents who maintain, increase or decrease activity levels for each lifestyle domain. As many as 87% report that they cut back on meeting friends and extended family members in person. Other changes, such as engagement in voluntary work, in spiritual, artistic and sporting activities were less pronounced.

Analysis and Results

Analysis of Means

The hypotheses outlined were tested by examining the differences that occurred in happiness and life satisfaction as reported by respondents. Figure 2 plots the histograms for both variables as reported during the outbreak and as recalled prior to it.

[1] Respondents were informed that the questionnaire would take around 6 min to complete and would not identify them. They could quit the survey at any time, refuse to answer any questions and needed to be 18 years or over to participate. At the end of the survey, they were given details on COVID-19 services available in Malta. The questionnaire was offered in both English and Maltese in popular groups on the most popular social media platform in Malta (Facebook). Ethics ref. nr V:11022020 4640.

Table 1
Definition and Description of Variables

Variable	Description	*M*	*SD*	Minimum	Maximum
	Exposure				
Exposure	Composite index of exposure to COVID-19 (0−6)	1.59	1.00	0	5
Worry	Composite index of worry about COVID-19 (0−28)	18.58	5.13	2	28
	Well-being and lifestyle during COVID-19				
Happiness	Self-reported Happiness (0−10)	4.74	2.42	0	10
Lifesat	Self-reported Life Satisfaction (0−10)	5.61	2.51	0	10
Finsit	Respondent's Financial Situation (0−2)	1.18	0.68	0	2
Artistic	Engagement in artistic activity (0−3)	0.77	0.88	0	3
Spiritual	Engagement in spiritual activity (0−3)	1.06	1.10	0	3
Nature	Frequency of going by the sea or nature (0−3)	0.59	0.77	0	3
Sleep	Frequency of sleeping well (0−3)	1.78	0.98	0	3
Sport	Engagement in sporting activity (0−3)	0.87	0.95	0	3
Volunt	Engagement in voluntary work (0−3)	0.20	0.58	0	3
Social	Meeting friends or extended family in person (0−3)	0.36	0.67	0	3
Paidh	Frequency of doing paid work at home (0−3)	1.13	1.25	0	3
	Well-being and lifestyle Prior to COVID-19				
P-happiness	Self-reported Happiness (0−10)	7.47	1.80	0	10
P-lifesat	Self-reported Life Satisfaction (0−10)	7.52	1.83	0	10
P-finsit	Respondent's Financial Situation (0−2)	1.55	0.61	0	2
P-artistic	Engagement in artistic activity (0−3)	0.63	0.78	0	3
P-spiritual	Engagement in spiritual activity (0−3)	0.92	0.95	0	3
P-nature	Frequency of going by the sea or nature (0−3)	1.08	0.70	0	3
P-sleep	Frequency of sleeping well (0−3)	1.97	0.86	0	3
P-sport	Engagement in sporting activity (0−3)	1.05	0.93	0	3
P-volunt	Engagement in voluntary work (0−3)	0.32	0.68	0	3
P-social	Meeting friends or extended family in person (0−3)	1.90	0.87	0	3
P-paidh	Frequency of doing paid work at home (0−3)	0.33	0.71	0	3
	Demographics				
Kids	Respondent lives with young child/children (0−1)	0.47	0.50	0	1
Female	Respondent is female (0−1)	0.77	0.42	0	1
Age	Age Band (0−5)	1.41	1.12	0	5
Tertiary	Respondent has a tertiary level of education (0−1)	0.56	0.50	0	1
Unemployment	Respondent is unemployed (0−1)	0.01	0.10	0	1
Illness	Respondent has some physical/mental health problem (0−1)	0.57	0.50	0	1
Partner	Respondent is in a stable relationship (0−1)	0.80	0.40	0	1
Trustgov	Respondent trusts Government (0−1)	0.41	0.49	0	1
	Personality				
Open	Respondent is open to new experiences, complex (0−6)	3.86	1.53	0	6
Emstab	Respondent is anxious, easily upset (0−6)	2.84	1.85	0	6
Extra	Respondent is extroverted, enthusiastic (0−6)	3.58	1.54	0	6
Agree	Respondent is sympathetic, warm (0−6)	4.65	1.30	0	6
Cons	Respondent is dependable, self-disciplined (0−6)	4.62	1.28	0	6

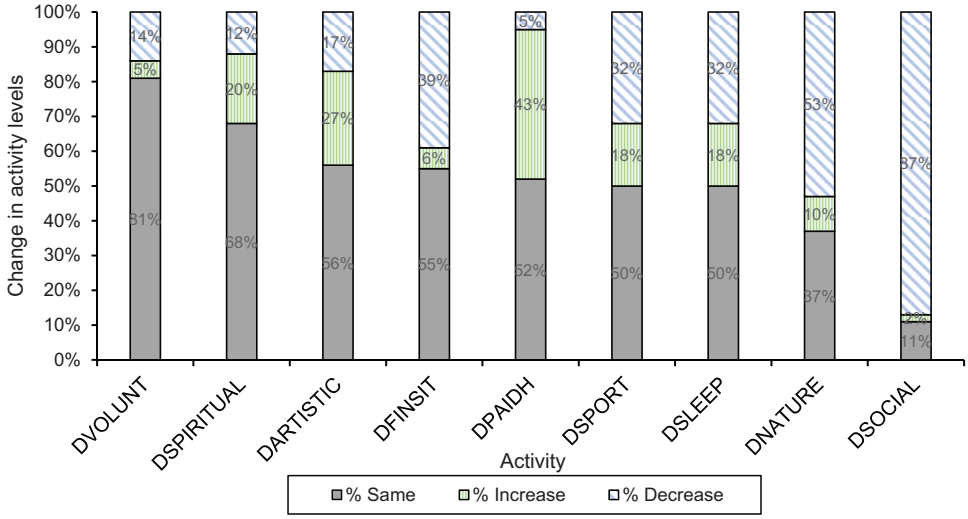
Note. $N = 1{,}821$ for all variables. In all (0-1) responses, 0 is No, 1 is Yes.

A substantial flattening may be observed in the distribution of responses with a shift toward lower scores during the outbreak. Mean happiness stood at 4.74 ($SD = 2.42$), whereas mean life satisfaction stood at 5.61 ($SD = 2.51$). Mean *recalled* happiness and life satisfaction stood at 7.47 ($SD = 1.80$) and 7.52 ($SD = 1.83$), respectively. According to the data, 78% of the respondents reported a lower level of happiness relative to their recalled levels, whereas 65% of our respondents reported lower life satisfaction. Recalled happiness and life satisfaction exhibit the same mean and have a very similar distribution to those reported in the latest data available reports. The latest data available for Malta gathered on a comparable 0-to-10 scale returns a mean life satisfaction of 7.5 (Eurostat, 2019). Comparing the mean observed during the COVID-19 outbreak in Malta with that recalled prior to the outbreak suggests a significant decline in life satisfaction ($diff = -1.91$; 95% CI [−2.03, −1.80], $p < .01$). Similarly, comparing the mean life satisfaction in Malta during the COVID-19 outbreak with the 7.5 value derived from secondary data, also suggests significant difference ($diff = -1.89$; 95% CI [5.49, 5.72], $p < .01$). Indeed, even employing the lowest values of life satisfaction ever published for Malta, namely, the 6.9 mean life satisfaction reported in the *World Happiness Report* (Helliwell et al., 2019), the difference is still statistically significant ($diff = -1.29$; 95% CI [5.49, 5.72], $p < .01$). For the more vulnerable participants in our sample, namely, those who were already struggling to cope financially prior to the outbreak, the chronically ill and individuals aged 60+, the differences are even more pronounced.[2] On this basis, we reject the null

[2] Histograms showing happiness and life satisfaction levels of these groups before and during COVID-19 will be made available by the authors upon request.

Figure 1

Changes in Lifestyle During the COVID-19 Outbreak in Malta



Note. Data on lifestyle changes (denoted by "D") is based on the extent to which respondents engage in activities "now" as opposed to "The days before COVID-19".

hypothesis, finding support for Hypothesis 1 that there were changes in well-being during the COVID-19 outbreak.

Regression Analysis

Informed by previous studies, a model of well-being is estimated as a function of a number of its determinants using ordinary least squares (Ferrer-i-Carbonell & Frijters, 2004). Two models are presented: one using data during the early days of the COVID-19 pandemic in Malta (Model 1) and another model using data pertinent to life *prior* to the outbreak (Model 2). Results are presented in Table 2, where the estimates reported represent the relationship between the explanatory variables and self-reported happiness, *everything else remaining constant*. The table also reports heteroscedasticity-robust standard errors, 95% CIs and *p* values.

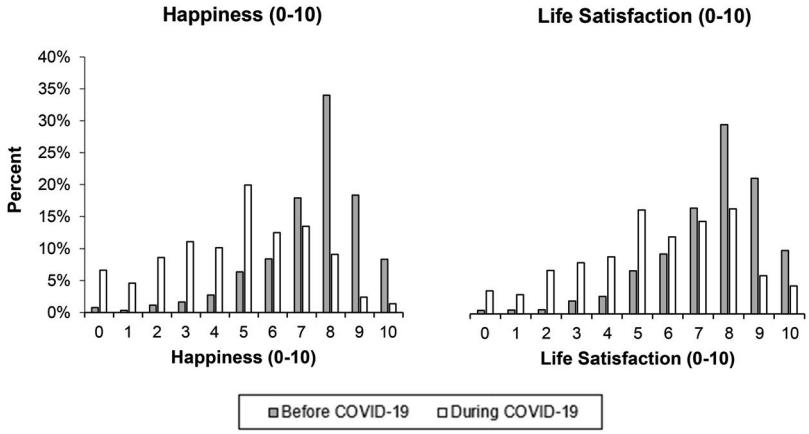
As can be inferred from Model 1, having a tertiary level of education, being in a stable relationship, and having no chronic physical or mental illness all predicted higher levels of happiness during the COVID-19 pandemic. Relative to respondents in their forties (which we use as the baseline age category), those aged over 60 exhibited a significantly lower level of happiness, and the negative effect increased with age. As expected, relative to the baseline category of "making ends meet," the category "struggling to cope" predicted a statistically significant lower level of happiness but being "able to save" was not associated with higher levels. Higher frequency of good sleep, and engagement in artistic, sporting, and voluntary activities were also significantly and positively related with happiness during the early days of the pandemic. Emotional stability, extraversion, and openness were found to be positively associated with self-reported happiness, whereas agreeableness was found to have a negative association. In addition to the main predictors of well-being, the model also includes the variable paidh, capturing the frequency with which a respondent worked from home in a typical week during the COVID-19 outbreak in Malta. Although this is not generally a factor that is included in well-being regressions, it merits consideration given the surge in work from home.[3] Prior studies have indicated that work from home can suppress happiness *for parents* (Song & Gao, 2019). The estimated coefficient of paidh is statistically significant and positive during the COVID-19 outbreak, suggesting that working from home was positively associated with higher levels of happiness in the days after the outbreak of the pandemic in Malta. The outcome remains stable to tests on respondent gender and having young children at home.

Model 1 also includes the composite indices of exposure to COVID-19 (exposure) and worry about the pandemic (worry). Exposure to an additional negative consequence of the COVID-19 pandemic (measured on a 7-point scale) was associated with a decline of 0.3 points in the self-reported happiness level. Moreover, worry also bears a statistically significant negative relationship with happiness. An incremental increase in worries about COVID-19 effects (measured on a 0–28 scale) was associated with a statistically significant lower level of happiness of .086. These findings provide support to Hypothesis 2, indicating that higher levels of worry about and exposure to the impacts of COVID-19 are associated with lower levels of well-being.

In comparing Model 1 with Model 2, further interesting insights are noted. While being in one's 60s (relative to being in one's 40s) was positively associated with happiness prior to the outbreak, this association turned negative during the COVID-19 pandemic. Conversely, having a tertiary education positively and significantly predicted well-being during the outbreak but was negatively related to

[3] In a typical week prior to COVID-19, the majority of males (73%) and females (78%) had never worked from home. During COVID-19, these figures went down to 47% for males and 51% for females.

Figure 2
Well-Being Histograms



Note. Charts are based on self-reported data on happiness/life satisfaction "in the days before COVID-19" and "now."

happiness prior to it. Phenomena such as working from home, participation in artistic, sporting, and voluntary activities, and sleep had a stronger association with happiness during the pandemic. Finally, activities that were discouraged or banned during the days following the outbreak of the pandemic (such as social interaction, participation in religious activities, and going outdoors by the sea or in the countryside) had a far weaker relationship with happiness during the pandemic than they did in the past. Together, these findings suggest that the COVID-19 outbreak may have changed the well-being equation itself, impacting both the direction and magnitude of coefficients. This provides some evidence in favor of Hypothesis 3 and indicates a deepening of disparities in happiness.

The same models are re-estimated with *life satisfaction* as the dependent variable (Table 3). As suggested by the literature, certain variables (e.g., those capturing unemployment and trust in government) have stronger predictive effects on life satisfaction than they do on happiness. The findings in these models reflect those found in other models of life satisfaction in Malta, where a positive association was documented with socializing, good health, environmental quality, government trust, religion and cultural engagement, and a negative association was noted with tertiary education (Briguglio & Sultana, 2017). In relation to the hypotheses being tested, it is again noted that COVID-19 exposure and concern are both negatively associated with one's life satisfaction (Hypothesis 2). Again, considerable changes in both the direction and magnitude of certain coefficients during COVID-19 are recorded (Hypothesis 3). Relative to pre-COVID-19 times, life satisfaction during the COVID-19 outbreak was lower among females and higher among parents.

Figure 3 synthesizes these findings in a plot of the standardized regression coefficients for both happiness and life satisfaction models. The application of standardized regression analysis allows for a better understanding of the relative importance of the variables, as the coefficients are expressed in terms of a single common set of statistical units (standard deviations). The plot reveals that the variables representing engagement in artistic, sporting or voluntary activities as well as good sleep returned larger *positive* coefficients during COVID-19 than prior to it. During COVID-19, happiness was negative in age and positive in tertiary education and work from home. These relationships were not traced in life satisfaction models.

Further Tests

In a further round of tests, the exposure and worry variables are unpacked to examine which subcomponents yield the strongest effects on happiness and life satisfaction. Among the exposure subvariables, it is chiefly the feeling of losing mental health that drives the negative relationship with happiness (â = −1.07, 95% CI [−1.310, −.833], p = .000) and among the WORRY subvariables, it is chiefly concern about losing mental health that suppresses happiness (â = −.37, 95% CI [−.465, −.275], p = .000). Similar results emerge when testing the effects of exposure and worry on life satisfaction. The main observation that emerges from these tests is the intimate link between the mental health effects caused by the pandemic and self-reported life satisfaction and happiness—even after controlling for *chronic* mental health (captured in the illness variable) and for emotional stability as a personality trait.

By way of robustness testing, the data are reshaped as a panel data set (N = 3,642). Although the survey data was collected at one point in time, it yields information about well-being and lifestyle during the pandemic and prior to it, based on recall. The period identifier varies from 0 (for pre-COVID-19 recalled variables) to 1 (for present day variables) for the same individuals. On the basis of the Hausman test, a fixed effects estimation is used, where time-invariant variables are omitted from the estimation, and the average value of the fixed effects is captured in the constant term (Table 4). The value of the EXPOSURE variable is imputed as 0 for all respondents for the pre-COVID-19 period, making a simplifying assumption that respondents did not bear any of the COVID-19 effects prior to the pandemic. On the basis of these estimations, exposure to the COVID-19 pandemic seems to have been strongly detrimental to both happiness and life satisfaction: An additional effect of COVID-19, relative to the average exposure between

Table 2
Explaining Happiness During and Prior to the COVID-19 Outbreak in Malta

Dependent variable Happiness (0–10) Effect	Model 1: During COVID-19					Model 2: Prior to COVID-19				
			95% CI					95% CI		
	Estimate	*SE*	*LL*	*UL*	*p*	Estimate	*SE*	*LL*	*UL*	*p*
Finsit[a]										
Struggling to cope	−.263	.153	−.563	.038	.086	−.789	.226	−1.232	−.346	.000
Able to save	.002	.115	−.223	.227	.987	.234	.085	.067	.401	.006
Artistic	.227	.058	.113	.341	.000	.057	.050	−.041	.156	.253
Spiritual	.047	.048	−.048	.142	.332	.193	.041	.111	.275	.000
Nature	.065	.067	−.066	.197	.330	.230	.060	.113	.347	.000
Sleep	.478	.056	.369	.588	.000	.335	.051	.236	.435	.000
Sport	.149	.056	.041	.257	.007	−.050	.045	−.139	.040	.275
Volunt	.231	.085	.065	.396	.006	−.078	.063	−.201	.045	.213
Social	.037	.077	−.113	.188	.629	.138	.049	.043	.233	.005
Age[a]										
18–29	.159	.149	−.134	.451	.288	.230	.123	−.011	.472	.061
30s	−.137	.132	−.396	.121	.296	.076	.103	−.126	.279	.460
50s	−.188	.192	−.564	.187	.325	.350	.139	.078	.621	.012
60s	−1.134	.300	−1.722	−.546	.000	.411	.184	.051	.771	.025
70s	−2.207	0.618	−3.419	−.995	.000	.574	.510	−.427	1.575	.261
Tertiary	.209	.109	−.006	.424	.056	−.293	.081	−.452	−.134	.000
Kids	.104	.117	−.125	.333	.372	.180	.091	.001	.358	.048
Illness	−.208	.109	−.423	.006	.057	−.175	.080	−.333	−.018	.029
Female	−.089	.121	−.327	.149	.464	.074	.093	−.109	.257	.428
Partner	.423	.128	.172	.674	.001	.590	.109	.375	.805	.000
Trustgov	.011	.103	−.192	.213	.919	.367	.079	.211	.522	.000
Unemploy	−.340	.440	−1.203	.522	.439	−.904	.522	−1.929	.122	.084
Open	.101	.038	.027	.175	.007	.019	.029	−.038	.076	.516
Emstab	.146	.032	.084	.208	.000	.059	.024	.012	.106	.013
Extra	.094	.040	.016	.173	.019	.137	.031	.077	.197	.000
Agree	−.102	.042	−.184	−.020	.014	.033	.034	−.034	.100	.335
Cons	.061	.043	−.023	.145	.157	.133	.037	.059	.206	.000
Paidh	.101	.043	.017	.185	.019	−.014	.066	−.144	.115	.830
Exposure	−.304	.054	−.410	−.197	.000					
Worry	−.086	.011	−.108	−.064	.000					
Constant	4.266	.436	3.411	5.121	.000	3.938	.317	3.316	4.560	.000

Note. $N = 1{,}821$ in both models. $R^2 = .271$ (Model 1); .213 (Model 2); *SE* = heteroscedasticity-robust standard error; CI = confidence interval; *LL* = lower limit; *UL* = upper limit.
[a] "Able to make ends meet" and "40s" were considered as the base categories for finsit and age, respectively.

the two periods, is associated with declines in happiness and life satisfaction to the tune of 0.58 and 0.44, respectively.

Discussion

The headline findings from this study are three. First, in using an analysis of means, the study finds a decline in mean happiness and life satisfaction during the COVID-19 outbreak, relative to prior levels. Furthermore, there exist considerable disparities in this decline among subsectors of the population. Second, being exposed to the effects of COVID-19 and worrying about this are significantly and negatively associated with happiness and life satisfaction. Driving these effects are the self-assessed negative effects of the COVID-19 outbreak on mental health and concern about this. Third, the well-being equation itself changed during the COVID-19 outbreak. Typically important positive predictors of well-being, such as social interaction and engagement in outdoor activities, failed to predict well-being at all during the COVID-19 outbreak in Malta. On the other hand, engaging in sporting, artistic or voluntary work continued to be associated with higher levels of self-assessed happiness and life satisfaction. During the outbreak, happiness was negatively associated with old age and positively associated with having a university degree and working from home.

Although the results withstood a number of tests, the limitations of the study need to be acknowledged. First, results are based on self-assessment, with some questions requiring recalling life prior to the COVID-19 outbreak in Malta. Subjective data do provide useful information, which enriches the understanding of human experience, well-being, and deprivation, but need to be treated with caution (Camfield & Esposito, 2014). Recall may be influenced by evaluative processes, and conflicting influences may be at play (OECD, 2013). On the one hand, retrospective impact bias may cause respondents to inflate the intensity of past happiness (Gilbert, 2006). For example, Diener et al. (1984) found that people with high levels of well-being overestimated their recalled positive affect for the previous 12 weeks, whereas people with low levels of well-being overestimated their recalled negative affect for the same period. On the other hand, during periods of trauma people may derogate pre-event attributes to improve the relative standing of present happiness (McFarland & Alvaro, 2000). Although it is not possible to test the extent to which either effects were present in the recall data in this study, the time period that

Table 3
Predictors of Life Satisfaction During and Prior to the COVID-19 Outbreak in Malta

Dependent variable Life Satisfaction (0–10) Effect	Model 1: During COVID-19					Model 2: Prior to COVID-19				
			95% CI					95% CI		
	Estimate	*SE*	*LL*	*UL*	*p*	Estimate	*SE*	*LL*	*UL*	*p*
Finsit[a]										
Struggling to cope	−0.520	.168	−0.848	−0.191	.002	−0.858	.218	−1.285	−0.431	.000
Able to save	0.194	.119	−0.041	0.428	.105	0.309	.086	0.140	0.477	.000
Artistic	0.107	.065	−0.020	0.234	.099	0.007	.050	−0.092	0.106	.888
Spiritual	0.158	.053	0.054	0.261	.003	0.206	.041	0.125	0.286	.000
Nature	0.106	.071	−0.034	0.246	.137	0.151	.062	0.029	0.273	.016
Sleep	0.426	.060	0.308	0.543	.000	0.335	.049	0.239	0.431	.000
Sport	0.119	.060	0.002	0.236	.047	0.032	.046	−0.059	0.122	.497
Volunt	0.211	.093	0.029	0.394	.023	−0.010	.055	−0.118	0.098	.853
Social	0.005	.083	−0.158	0.167	.956	0.146	.048	0.052	0.241	.002
Age[a]										
18–29	0.011	.164	−0.311	0.334	.946	−0.007	.118	−0.238	0.225	.953
30s	0.044	.138	−0.226	0.314	.750	−0.003	.096	−0.192	0.186	.975
50s	0.327	.208	−0.081	0.736	.116	0.264	.139	−0.009	0.537	.058
60s	0.055	.329	−0.590	0.700	.867	0.295	.197	−0.092	0.682	.135
70s	0.057	.626	−1.171	1.285	.927	0.070	.464	−0.841	0.980	.881
Tertiary	−0.072	.117	−0.302	0.158	.539	−0.218	.080	−0.374	−0.061	.007
Kids	0.343	.126	0.095	0.590	.007	0.176	.090	−0.001	0.352	.051
Illness	−0.284	.116	−0.511	−0.056	.015	−0.209	.078	−0.362	−0.056	.008
Female	−0.525	.127	−0.774	−0.277	.000	−0.033	.096	−0.221	0.154	.727
Partner	0.663	.140	0.388	0.937	.000	0.650	.113	0.427	0.872	.000
Trustgov	0.222	.109	0.008	0.436	.042	0.383	.078	0.230	0.536	.000
Unemploy	−0.874	.529	−1.912	0.165	.099	−1.062	.444	−1.933	−0.192	.017
Open	0.064	.041	−0.016	0.143	.117	0.027	.029	−0.030	0.084	.356
Emstab	0.104	.033	0.039	0.169	.002	0.067	.023	0.021	0.113	.004
Extra	0.147	.043	0.063	0.232	.001	0.165	.031	0.104	0.226	.000
Agree	−0.010	.044	−0.097	0.077	.822	0.034	.035	−0.034	0.102	.330
Cons	0.139	.045	0.051	0.226	.002	0.165	.036	0.095	0.234	.000
Paidh	−0.029	.045	−0.118	0.060	.523	−0.065	.065	−0.193	0.063	.318
Exposure	−0.303	.058	−0.417	−0.189	.000					
Worry	−0.047	.012	−0.071	−0.023	.000					
Constant	3.909	.460	3.007	4.811	.000	3.754	.299	3.168	4.340	.000

Note. $N = 1{,}821$ in both models. $R^2 = .223$ (Model 1); .246 (Model 2); *SE* = heteroscedasticity-robust standard error; CI = confidence interval; *LL* = lower limit; *UL* = upper limit.
[a] "Able to make ends meet" and "40s" were considered as the base categories for finsit and age, respectively.

had elapsed was relatively short (3 weeks) and the averages returned by respondents were found to be very close to those recorded in earlier studies undertaken prior to COVID-19 (Eurostat, 2019; Helliwell et al., 2019).

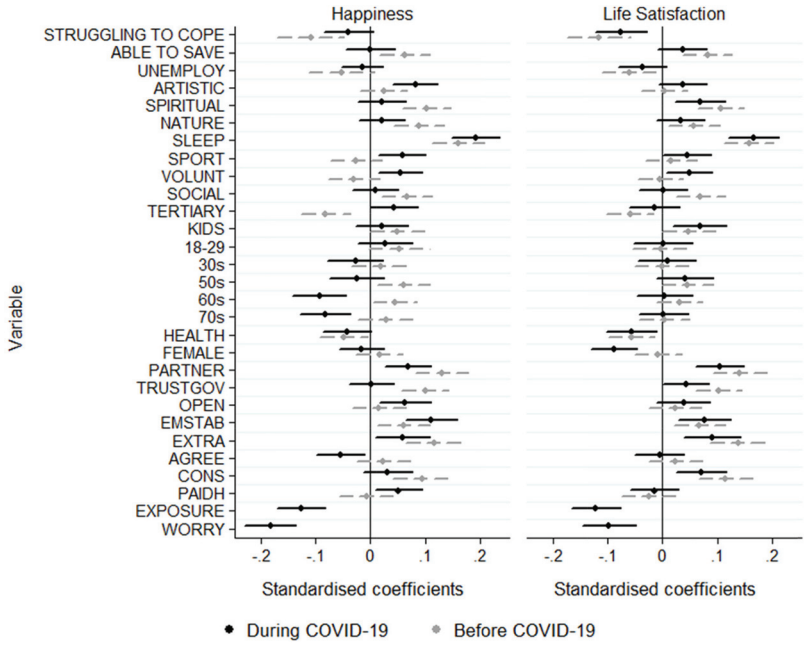
Considerable effort was made to reduce other potential biases (Tourangeau et al., 2000). To reduce the prospect of priming reported life satisfaction and happiness, respondents were asked these questions at the very start of the questionnaire. To avoid language and education barriers, the questionnaire was kept very simple, short and offered in both Maltese and English. But keeping the questionnaire simple came at a further cost, that of having to avoid elaborate constructs to capture the phenomena. To reduce the prospect of social desirability bias, respondents were able to complete the forms themselves and anonymously. But given that respondents *opted into* participating in the survey, this may also suggest that they have a higher propensity to engage with the issue than others.

It also bears noting that the models estimated in this study are mainly based on cross-section data. As a result, relationships between well-being measures, and its predictors cannot be interpreted as causal, but rather as relationships, controlling for the effects of other predictors. This said, the fixed effects estimator provides some evidence that it is the exposure to COVID-19 that suppresses happiness or life satisfaction and not the other way around. Repeated waves of such a study with the same participants would allow for panel data analysis and the identification of causal effects (Wooldridge, 2013, p. 473). A related set of considerations pertain to the timing and the context of the survey. The survey was conducted in Malta in the early stages of the outbreak, suggesting that effects are lower-bound (Briguglio & Moncada, 2020). It is plausible to assume that even greater effects would be felt as the shock persists. On the other hand, long-term effects could subside as people change their aspirations (Kahneman & Krueger, 2006). Eurofound data, collected in Malta approximately 1 month after our own survey, finds both happiness and life satisfaction to average 6.1 on their 10-point scale. These means are substantially lower than those reported by Eurofound itself in times prior to COVID-19 (Eurofound, 2020).

Finally, it is worth noting that although the sample provided sufficient variation to allow us to test hypotheses, it is not representative of the whole nation. The sample means reveal a younger, more educated, and more female sample in comparison to the general population (NSO, 2017). Particularly worthy of note is the fact that this survey does not capture the poorest of the poor, the

Figure 3

Coefficient Plot of Well-Being Before COVID-19 and During COVID-19 in Malta



Note. Coefficients (based on standardized regressions) show change in standard deviations (*SD*) of Y (well-being measures) per *SD* of each explanatory variables, holding other variables constant.

homeless, people in institutions, children and those who are not literate enough to complete it alone. Neither does it capture issues such as domestic violence and drug dependency. These aspects merit in-depth investigation of their own accord. Future research could replicate this study as a nationally representative one, possibly powered to assess the impacts on vulnerable populations.

Conclusion

At the time of writing this article, governments in many countries were struggling to contain the COVID-19 pandemic and its economic fallout (Briguglio & Moncada, 2020; Elgin et al., 2020). Concurrently, individuals across the globe were experiencing considerable

Table 4

Determinants of Happiness and Life Satisfaction – Fixed Effects Estimation

	Model 1: Happiness (0–10)					Model 2: Life satisfaction (0–10)				
			95% CI					95% CI		
Effect	Estimate	*SE*	*LL*	*UL*	*p*	Estimate	*SE*	*LL*	*UL*	*p*
Finsit[a]										
Struggling to cope	−0.562	.176	−0.908	−0.217	.001	−0.768	.154	−1.070	−0.467	.000
Able to save	0.501	.123	0.261	0.742	.000	0.410	.110	0.194	0.625	.000
Artistic	0.208	.076	0.060	0.357	.006	0.174	.069	0.039	0.310	.012
Spiritual	−0.079	.094	−0.263	0.104	.397	−0.077	.081	−0.236	0.082	.341
Nature	0.368	.074	0.223	0.512	.000	0.180	.069	0.044	0.315	.009
Sleep	0.675	.067	0.543	0.807	.000	0.480	.060	0.362	0.599	.000
Sport	0.232	.069	0.097	0.367	.001	0.190	.061	0.071	0.309	.002
Volunt	−0.072	.101	−0.271	0.126	.475	0.030	.088	−0.143	0.203	.735
Social	0.713	.054	0.607	0.819	.000	0.450	.048	0.356	0.544	.000
Paidh	0.044	.046	−0.046	0.135	.337	−0.057	.040	−0.135	0.021	.150
Exposure	−0.582	.053	−0.686	−0.478	.000	−0.442	.046	−0.533	−0.351	.000
Constant	3.706	.215	3.284	4.128	.000	5.050	.184	4.689	5.411	.000

Note. $N = 3{,}642$ in both models. R-squared: .563 (model 1); .472 (model 2). *SE* = heteroscedasticity-robust standard error; CI = confidence interval; *LL* = lower limit; *UL* = upper limit.

[a] "Able to make ends meet" was considered as the base category for finsit.

challenges in their day-to-day lives (Greyling et al., 2021; Zhang et al., 2020). Within the methodological limitations outlined, the results in this study provide insights on some of the ripple effects of the COVID-19 pandemic. It finds a significant negative impact on self-reported happiness and life satisfaction relative to prior times. Well-being seems to have been suppressed directly by exposure to COVID-19, as well as indirectly by the lifestyle changes which occurred. The study also documents a change in the happiness equation itself, with differences in both the magnitude and the direction of the correlates of happiness and life satisfaction. Within less than 3 weeks of the first case in Malta, activities like going outdoors and meeting others socially had declined substantially while working from home increased. Activities like engaging in sport, doing creative work and participating in voluntary work continued to be pervasive enough to be positively associated with well-being. The study also finds that disparities in well-being were deepened during the initial weeks of the outbreak of COVID-19 in Malta. The hardest hit demographics were older people and those struggling to cope financially. On the other hand, having a tertiary education and being able to work from home were positively associated with well-being at this time. The findings therefore suggest that there may be scope for intervention to mitigate well-being disparities impacting the vulnerable. They also suggest scope for promoting safe engagement in activities like sport, creative work and voluntary work and work from home for these are positively associated with well-being during the pandemic. This kind of intervention can help government juggle the demands of maintaining societal well-being while flattening the epidemic curve.

References

Bai, Y., Lin, C. C., Lin, C. Y., Chen, J. Y., Chue, C. M., & Chou, P. (2004). Survey of stress reactions among health care workers involved with the SARS outbreak. *Psychiatric Services*, *55*(9), 1055–1057. https://doi.org/10.1176/appi.ps.55.9.1055

Blanchflower, D. G. (2009). International evidence on well-being. In A. B. Krueger (Ed.), *Measuring the subjective well-being of nations: National accounts of time use and well-being* (pp. 155–226). University of Chicago Press. https://doi.org/10.7208/chicago/9780226454573.003.0008

Blanchflower, D. G., & Oswald, A. J. (2008). Is well-being U-shaped over the life cycle? *Social Science and Medicine*, *66*(8), 1733–1749. https://doi.org/10.1016/j.socscimed.2008.01.030

Briguglio, M., & Moncada, S. (2020, November). *Malta, COVID-19 Island Insights Series, no 1*. University of Strathclyde Centre for Environmental Law and Governance, University of Prince Edward Island Institute of Island Studies and Island Innovation.

Briguglio, M., & Sultana, A. (2017). Man cannot live on bread alone: cultural participation and life satisfaction in Malta. In V. A. Cremona (Ed.), *Capitalising on culture? Malta and the European Capital of Culture* (pp. 15–36). Malta University Publishing.

Camfield, L., & Esposito, L. (2014). A cross-country analysis of perceived economic status and life satisfaction in high- and low-income countries. *World Development*, *59*, 212–223. https://doi.org/10.1016/j.worlddev.2014.01.018

Capaldi, C. A., Dopko, R. L., & Zelenski, J. M. (2014). The relationship between nature connectedness and happiness: A meta-analysis. *Frontiers in Psychology*, *5*, Article 976. https://doi.org/10.3389/fpsyg.2014.00976

Central Bank of Malta. (2020). *The Quarterly Review* (Vol. 53 No. 1).

Diener, E., Larsen, R. J., & Emmons, R. (1984). *Bias in mood recall in happy and unhappy persons* [Paper presentation]. 92nd Annual Convention of the American Psychological Association, August, Toronto.

Diener, E., & Lucas, R. E. (1999). Personality and subjective well-being. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being: Foundations of Hedonic Psychology* (pp. 213–229). Russell Sage Foundation Foundation.

Dong, E., Du, H., & Gardner, L. (2020). An interactive web-based dashboard to track COVID-19 in real time. *The Lancet Infectious Diseases*, *20*(5), 533–534. https://doi.org/10.1016/S1473-3099(20)30120-1

Easterlin, B. L., & Cardeña, E. (1998). Cognitive and emotional differences between short-and long-term vipassana meditators. *Imagination, Cognition and Personality*, *18*(1), 69–81. https://doi.org/10.2190/21GX-R4TD-XMD4-6P2W

Easterlin, R. A. (2003). Explaining happiness. *Proceedings of the National Academy of Sciences of the United States of America*, *100*(19), 11176–11183. https://doi.org/10.1073/pnas.1633144100

Elgin, C., Basbug, G., & Yalaman, A. (2020). Economic policy responses to a pandemic: Developing the COVID-19 economic stimulus index. COVID economics, Vetted and Real-Time Papers 3.

Eurofound. (2020). *Living, working and COVID-19: First findings—April 2020*. http://hdl.voced.edu.au/10707/538187

Eurostat. (2019). Quality of Life in 2018: How satisfied are people with their lives? *Eurostat News*. https://ec.europa.eu/eurostat/documents/2995521/10207020/3-07112019-AP-EN.pdf/f4523b83-f16b-251c-2c44-60bd5c0de76d

Ferrer-i-Carbonell, A., & Frijters, P. (2004). How important is methodology for the estimates of the determinants of happiness? *The Economic Journal*, *114*(497), 641–659. https://doi.org/10.1111/j.1468-0297.2004.00235.x

Fetzer, T., Hensel, L., Hermle, J., & Roth, C. (2020). Coronavirus perceptions and economic anxiety. *The Review of Economics and Statistics*. Advance online publication. https://doi.org/10.1162/rest_a_00946

Fiske, D. W. (1949). Consistency of the factorial structures of personality rating from different sources. *Journal of Abnormal Social Psychology*, *44*, 329–344. https://doi.org/10.1037/h0057198

Gilbert, D. (2006). *Stumbling on happiness*. Knopf.

Gosling, S. D., Rentfrow, P. J., & Swann, W. B., Jr. (2003). A very brief measure of the big-five personality domains. *Journal of Research in Personality*, *37*(6), 504–528. https://doi.org/10.1016/S0092-6566(03)00046-1

Greyling, T., Rossouw, S., & Adhikari, T. (2021). A tale of three countries: What is the relationship between COVID-19, lockdown and happiness? *South African Journal of Economics*, *89*(1), 25–43. https://doi.org/10.1111/saje.12284

Grossi, E., Blessi, G. T., Sacco, P. L., & Buscema, M. (2012). The interaction between culture, health and psychological well-being: Data mining from the Italian culture and well-being project. *Journal of Happiness Studies*, *13*(1), 129–148. https://doi.org/10.1007/s10902-011-9254-x

Hawryluck, L., Gold, W. L., Robinson, S., Pogorski, S., Galea, S., & Styra, R. (2004). SARS control and psychological effects of quarantine, Toronto, Canada. *Emerging Infectious Diseases*, *10*(7), 1206–1212. https://doi.org/10.3201/eid1007.030703

Helliwell, J. F. (2003). How's life? combining individual and national variables to explain subjective well-being. *Economic Modelling*, *20*(2), 331–360. https://doi.org/10.1016/S0264-9993(02)00057-3

Helliwell, J., Layard, R., & Sachs, J. (2019). *World happiness report 2019*. Sustainable Development Solutions Network.

Inglehart, R. (2010). Faith and freedom: Traditional and modern ways to happiness. In E. Diener, D. Kahneman, & J. Helliwell (Eds.), *International differences in well-being* (351–397). Oxford Scholarship Online. https://doi.org/10.1093/acprof:oso/9780199732739.003.0012

Ishino, T., Kamesaka, A., Murai, T., & Ogaki, M. (2012). Effects of the great East Japan earthquake on subjective well-being. *Journal of Behavioral Economics and Finance*, *5*, 269–272. https://doi.org/10.11167/jbef.5.269

Kahneman, D., & Krueger, A. B. (2006). Developments in the measurement of subjective well-being. *The Journal of Economic Perspectives*, *20*(1), 3–24. https://doi.org/10.1257/089533006776526030

Kimball, M., Levy, H., Ohtake, F., & Tsutsui, Y. (2006). *Unhappiness after Hurricane Katrina* (NBER Working Papers, 12062). National Bureau of Economic Research, Inc.

Lucas, R. E., Clark, A. E., Georgellis, Y., & Diener, E. (2004). Unemployment alters the set point for life satisfaction. *Psychological Science*, *15*(1), 8–13. https://doi.org/10.1111/j.0963-7214.2004.01501002.x

Luechinger, S., & Raschky, P. A. (2009). Valuing flood disasters using the life satisfaction approach. *Journal of Public Economics*, *93*(3–4), 620–633. https://doi.org/10.1016/j.jpubeco.2008.10.003

McFarland, C., & Alvaro, C. (2000). The impact of motivation on temporal comparisons: Coping with traumatic events by perceiving personal growth. *Journal of Personality and Social Psychology*, *79*(3), 327–343. https://doi.org/10.1037/0022-3514.79.3.327

Meier, S., & Stutzer, A. (2008). Is volunteering rewarding in itself? *Economica*, *75*(297), 39–59. https://doi.org/10.1111/j.1468-0335.2007.00597.x

Moor, N., & de Graaf, P. M. (2016). Temporary and long-term consequences of bereavement on happiness. *Journal of Happiness Studies*, *17*(3), 913–936. https://doi.org/10.1007/s10902-015-9624-x

National Statistics Office, Malta. (2017). *Culture Participation Survey 2016*. Arts Council Malta together with The National Statistics Office and The Valletta 2018 Foundation.

North, R. J., Holahan, C. J., Moos, R. H., & Cronkite, R. C. (2008). Family support, family income, and happiness: A 10-year perspective. *Journal of Family Psychology*, *22*(3), 475–483. https://doi.org/10.1037/0893-3200.22.3.475

Organisation for Economic Co-Operation and Development. (2013). *OECD guidelines on measuring subjective well-being*. OECD Publishing.

OECD/European Observatory on Health Systems and Policies. (2019). State of Health in the EU Malta: Country Health Profile 2019. OECD Publishing. https://doi.org/10.1787/05db1284-en

Oreopoulos, P. (2007). Do dropouts drop out too soon? Wealth, health and happiness from compulsory schooling. *Journal of Public Economics*, *91*(11–12), 2213–2229. https://doi.org/10.1016/j.jpubeco.2007.02.002

Powell, T. M., Yuma, P. J., Scott, J., Suarez, A., Morales, I., Vinton, M., Marrero, M., & Li, S.-J. (2020). In the aftermath: The effects of hurricanes Harvey and Maria on the well-being of health-care and social service providers. *Traumatology*, *26*(3), 298–307. https://doi.org/10.1037/trm0000228

Song, Y., & Gao, J. (2020). Does telework stress employees out? A study on working at home and subjective well-being for wage/salary workers. *Journal of Happiness Studies*, *21*(7), 2649–2668. https://doi.org/10.1007/s10902-019-00196-6

Stevenson, B., & Wolfers, J. (2009). The paradox of declining female happiness. *American Economic Journal Economic Policy*, *1*(2), 190–225. https://doi.org/10.1257/pol.1.2.190

Tourangeau, R., Rips, L. J., & Rasinski, K. A. (2000). *The psychology of survey response*. Cambridge University Press. https://doi.org/10.1017/CBO9780511819322

Veenhoven, R. (1984). *Conditions of happiness*. Springer. https://doi.org/10.1007/978-94-009-6432-7

Waite, L. J., Luo, Y., & Lewin, A. C. (2009). Marital happiness and marital stability: Consequences for psychological well-being. *Social Science Research*, *38*(1), 201–212. https://doi.org/10.1016/j.ssresearch.2008.07.001

Wooldridge, J. M. (2013). *Introductory econometrics: A modern approach* (5th ed.). Cengage Learning.

Yamamura, E. (2012). *Natural disasters and their long-term effect on happiness: The case of the great hanshin-awaji earthquake* (MPRA Paper 37505). University Library of Munich.

Zhang, S. X., Wang, Y., Rauch, A., & Wei, F. (2020). Unprecedented disruption of lives and work: Health, distress, and life satisfaction of people one-month into COVID-19 outbreak in China. *Psychiatry Research*, *288*, Article 112958. https://doi.org/10.1016/j.psychres.2020.112958

Zhang, Z., & Chen, W. (2019). A systematic review of the relationship between physical activity and happiness. *Journal of Happiness Studies*, *20*(4), 1305–1322. https://doi.org/10.1007/s10902-018-9976-0

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