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ABSTRACT

Does volunteering causally improve well-being? To empirically test this question, we examined one instantiation of volunteering that is common at post-secondary institutions across North America: community service learning (CSL). CSL is a form of experiential learning that combines volunteer work with intentional learning goals and active reflection. We partnered with an academic program that randomly assigns interested students to participate in a CSL program or to a wait-list. As part of this CSL program, students are required to engage in 10–12 h of formal volunteering each week in addition to completing related coursework. To assess the well-being benefits of formal volunteering through CSL participation, we examined the subjective well-being (SWB) of students from both groups over a six-month period. Using Bayesian statistics, and comparing a null model to a model specifying a small to moderate benefit of CSL participation, we found conclusive evidence in support of the null model. These findings diverge from previous correlational research in this area by providing no evidence for the causal benefits of volunteering on SWB. These findings highlight the critical importance of using experimental methodology to establish the causal benefits of volunteer work, such as the experiences provided by CSL programs, on SWB.


KEYWORDS

Prosocial behavior; education; well-being; college students; Bayesian statistics

Does volunteering improve psychological health? Recent studies have documented the power of prosocial behavior, showing that providing help to others is often accompanied by enhanced moods and greater subjective well-being (SWB). However, due to the challenges associated with randomly assigning individuals to spend their time helping others, almost no published work has assessed the causal benefits of volunteering. Consequently, the goal of the present study is to assess whether formal volunteering causes improvements in emotional health.

A large body of correlational and longitudinal research demonstrates that spending time helping others is associated with benefits for the self. Past research has shown that volunteering is associated with greater positive affect (PA), life satisfaction, social engagement, and reduced depression (e.g. Krueger, Hicks, & McGue, 2001; Musick & Wilson, 2003; Schwartz &

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Sendor, 1999). For example, in a longitudinal study of nearly 3000 adults over the age of 25, volunteering was associated with reduced depression and increased life satisfaction eight years later (Musick & Wilson, 2003). Furthermore, in a comprehensive review of 37 correlational and longitudinal studies, adult volunteers scored higher on quality of life measures as compared to nonvolunteers (Gorey, 1998). Together, this work suggests that volunteering may have robust effects on various facets of psychological well-being, although causal inferences are limited by reliance on correlational and longitudinal designs. Indeed, most research in this area has utilized cross-sectional designs which cannot rule out selection effects—people with higher levels of well-being are also more likely to volunteer (e.g. see Bekkers, 2012, for a similar discussion).

Although research examining the influence of volunteering on psychological health has relied extensively on correlational and longitudinal designs, quasi-experimental research provides evidence that volunteering improves behavioral outcomes in important domains. Across several quasi-experimental studies comparing volunteers to age-matched samples of non-volunteers, adolescent volunteers exhibited improved academic performance and decreased problem behaviors as compared to nonvolunteers (Schondel, Boehm, Rose, & Marlowe, 1995; Uggen & Janikula, 1999). In a landmark experimental study, high school students randomly assigned to volunteer with a national program, Teen Outreach, showed lower rates of pregnancy, school failure, and academic suspension as compared to students assigned to a wait-list (Allen, Philliber, Herrling, & Kuperminc, 1997). This study demonstrates the causal benefits of volunteering on critical developmental outcomes. However, almost all of the experimental research in this area has focused on academic or health-related behaviors and has not determined the causal impact of volunteering on emotional health indicators, such as PA, life satisfaction, social engagement, and reduced depression.

Despite the paucity of research documenting the causal benefits of formal volunteer work on SWB, previous cross-sectional and correlational research provides a few potential explanations for why volunteering may have long-term benefits. For example, research examining the benefits of volunteer participation suggests that volunteering may incur benefits for well-being in part by encouraging social integration (e.g. Musick & Wilson, 2003) and by increasing feelings of autonomy and competence (e.g. Piferi & Lawler, 2006). Recent research also suggests that providing help to others can protect individuals from experiencing the negative impact of stress on SWB and physical health (e.g. Poulin, Brown, Dillard, & Smith, 2013; Raposa, Laws, & Ansell, 2015; Whillans, Dunn, Sandstrom, Dickerson, & Madden, 2016). Thus, formal volunteering, such as the volunteer experiences gained through community service learning (CSL) participation, may have long-lasting benefits for well-being by fostering social connection, encouraging feelings of competence and accomplishment, and protecting students from the negative impact of stress on health. Indeed, these positive feelings and experiences may contribute to higher overall levels of SWB (PA, life satisfaction, social engagement) and lower levels of depression for students randomly assigned to complete the CSL program compared to students randomly assigned to the wait-list.

To the best of our knowledge, there is only one empirical study published to date that has used random assignment to assess the causal impact of formal volunteering on SWB. In this study, 106 10th-grade students were randomly assigned to volunteer for 1–2 h per week for 10 consecutive weeks or were assigned to a wait-list. Students who

were assigned to volunteer showed significant decreases in cardiovascular disease risk factors (e.g. body mass index, inflammation, and cholesterol levels) as compared to students who were assigned to the wait-list (Schreier, Schonert-Reichl, & Chen, 2013). However, students who were assigned to volunteer did not exhibit increases in PA, decreases in negative affect (NA), or changes in self-esteem as compared to students assigned to a wait-list (Schreier et al., 2013). This study, which is one of the only existing experimental studies conducted on this topic, casts some doubt on the possibility that volunteering has lasting benefits for participants' SWB. Yet, this study focused only on high school students from lower income backgrounds, who completed only one form of volunteering (tutoring), thus the generalizability of these results is unclear.

Volunteering can take multiple forms, such as tutoring, providing informal support to friends and family, or participating in formal volunteer work by donating time to a community organization (Tilly & Tilly, 1992; Wilson & Musick, 1997). A prevalent form of formal volunteering on college campuses in North America is CSL. By definition, CSL is a form of experiential learning that combines volunteer work in the community with intentional learning goals, conscious reflection, and critical analysis (Kendall, 1990). In recent years, national surveys of American college students have revealed that 65% of students report having opportunities for CSL on their campuses (Franke, Ruiz, Sharkness, DeAngelo, & Pryor, 2010), 25% of students report having engaged in community service or CSL in the past year (Kirby & Kawashima-Ginsberg, 2009), and 31% of college freshmen indicate that there is a "very good chance" they will participate in CSL during college (Higher Education Research Institute, 2009). Practically, given the growing popularity of CSL on college campuses and the growing interest about improving the well-being of college students across North America (Kitzrow, 2003), it is critical to understand whether CSL causally influences SWB. Theoretically, intentional activities are thought to provide some of the greatest levers for enhancing SWB (e.g. Sheldon & Lyubomirsky, 2004). Furthermore, providing help to others has been shown to be one of the most reliable routes to happiness (e.g. Dunn, Aknin, & Norton, 2008). From a conceptual perspective, it is therefore interesting to examine whether an intentional activity that is prevalent in the real-world increases well-being; CSL creates a natural experiment to test this prediction.

To provide necessary experimental research in this area, we partnered with a CSL program at a prestigious Catholic university in the United States. The CSL program at this university attracts a large number of students each year and randomly assigns these students to participate in the program or to a wait-list. Consequently, this program allows us to measure the causal impact of volunteering on various facets of SWB, including PA, life satisfaction, social engagement, and depression. By examining students assigned to participate in the CSL program or to a wait-list, this research aims to provide one of the first empirical investigations assessing whether volunteer participation causes improvements in SWB. This study will also allow us to conduct exploratory analyses assessing when and for whom volunteering might have the greatest benefits.

Broadly, this project aims to examine the benefits of volunteering on SWB by studying the benefits of CSL participation, which is a prevalent instantiation of formal volunteer work. Of course, a limitation of examining the benefits of CSL participation is that we will be unable to isolate the unique contributions of volunteering from CSL coursework. Despite this constraint, given the limited experimental work in this area, this

project will provide the ground work for future research to examine the specific mechanisms that contribute to any documented benefits of volunteer participation on various components of SWB.

The primary purpose of this research is to document the overall effect of volunteering on SWB. On an exploratory basis, we will also conduct moderator analyses guided by past research to examine when and for whom volunteering has the greatest benefits. Previous research suggests that these at-risk groups are most likely to benefit from volunteering (Wheeler & Gorey, 1998; Schreier et al., 2013). Consequently, in these exploratory analyses, we will examine whether helping others has an especially large positive effect for individuals from lower socioeconomic status (SES) backgrounds and for individuals with higher depressive symptomology. On an exploratory basis, we will examine whether the characteristics of the volunteer placement and of the volunteers differentially predict the well-being benefits of CSL participation. We will examine whether students' satisfaction with their volunteer placement predicts greater well-being benefits (Stukas, Hoyer, Nicholson, Brown, & Aisbett, 2016). We will also examine whether students' personal motivations predict the benefits of volunteering. Specifically, we will examine whether students who report greater other-focused motivations to give back to the community reap greater rewards as compared to students who report greater self-focused motivations (Horn, 2012). Furthermore, we will examine whether students who report feeling that their CSL participation is elective vs. required experience the greatest well-being benefits (Stukas et al., 2016; Weinstein & Ryan, 2010).

Collectively, these analyses will start to shed light on when and for whom volunteering might have the greatest benefits (see the Supplemental Data for a brief overview of the exploratory analyses that we chose to conduct, our predicted outcomes where applicable, and our pre-registered analysis plan for these exploratory analyses). It is worth noting that these additional analyses should be treated as exploratory given that our preregistered power analysis was based on detecting the main effect of volunteering on SWB; consequently, our study may be underpowered to detect moderation effects in this experimental context.

Materials and methods

Participants

Sample characteristics

Students who signed up for the CSL program were eligible to participate in our study. This two-semester program, which provides one way to meet an academic requirement, entails completing 10–12 h of weekly community service at one of 60 different field placements while taking a philosophy course. Each year, approximately 500 students sign up for this program, and 400 are assigned to participate (based on a random draw of student numbers), while the remaining students are placed on the wait-list. Although many universities worldwide have instituted service-learning programs, we chose to study this CSL program because it offers several key advantages over other programs. Most importantly, this is a well-established program that consistently attracts a large number of students and uses random assignment to select them for participation. Furthermore, the fact that students have the option to fulfill the same academic

requirement without completing community service means that choosing to complete the CSL program is psychologically consistent with standard volunteer work (which is elective rather than required). Examining students assigned to complete this program or to a wait-list also allows our team to compare the benefits of CSL participation among individuals who do not differ in their interest in completing a CSL program, thereby overcoming a limitation of most published research in this area, which typically assesses the benefits of volunteering by comparing volunteers to nonvolunteers. Additionally, the research team has successfully completed research on this program in the past, thus helping to ensure the success of this project. Based on our team's previous research on this program, we expected a low attrition rate over the academic year of 10%. Students provided informed consent prior to participating, allowing us to publish the anonymous case-level data for this study. These data are available through the Open Science initiative <https://osf.io/aqi5j/>.

Overview

When students signed up for the program, they were offered the opportunity to participate in the study. During the first week of the semester, before the CSL program started (Time 1), students completed an online consent form and survey containing measures of the hours per week that students typically devoted to volunteering, self-reported perceived stress, social engagement, and emotional well-being measures and several demographic items (see the Supplemental Data for survey items). Students who met our eligibility criteria were invited to complete a follow-up survey after completion of the CSL program in April 2016 (Time 2). At this time, participants from both the CSL program and the wait-list were invited to complete a short, online follow-up survey that contained our primary dependent measures (see the Supplemental Data). In this follow-up survey, participants completed the identical measures of volunteer hours, perceived stress, social engagement, and emotional well-being that they completed at Time 1.

Experimental condition

Students in the experimental group volunteered at one of the many social service agencies partnered with the CSL program. The field placements range from homeless shelters and after-school child care to working at a food bank and mentoring younger students. For example, during the 2012–2013 academic year, approximately 40% of the placements were in the field of education, 25% addressed issues involving health care or the elderly, 20% addressed issues of homelessness, and the other 15% involved immigration, racism, or the corrections system. While there is a wide range of field placements, all placements are similar in that they involve volunteering with relatively disadvantaged youth or adults. Regardless of placement, students are expected to volunteer 10–12 h each week including time taken for travel. CSL students also attend class three times per week, participate in weekly discussion sections, and complete related reading and writing assignments.

The academic component of the CSL program is a year-long course in philosophy and theology entitled "Person and Social Responsibility." While there is some variability in the content of the course across the faculty members who teach in the CSL program, the readings in all sections include readings related to the history of philosophy from contemporary philosophers (e.g. Foucault and Rawls) and nonphilosophers (e.g. Kozol

and Farmer). This discussion section allowed students to meet with CSL faculty members in smaller groups, to ask questions about the weekly readings and lectures, to share experiences regarding their service placements, and to discuss connections between their service experiences and academics (see Seider, Gillmor & Rabinowicz, 2010 for an in-depth discussion of the CSL program characteristics). Meanwhile, students in the control group attended their regularly scheduled classes.

Previous research has found that participation in this CSL program significantly increases students' public service motivation (Seider, Rabinowicz & Gilmor, 2011) and students' expected political involvement (Seider, Gilmor & Rabinowicz, 2012); in this project, we are interested in whether participation in this prevalent form of volunteering also impacts emotional well-being. Building on this work, future research should disentangle the relevant contributions of the discussion sections and formal volunteering for improving the emotional health of students; in this project, we broadly focus on the overall contribution of CSL participation on well-being.

Primary measures

To provide measures of emotional well-being at Times 1 and 2, participants completed (a) the Schedule of Positive Affect and Negative Affect (Diener et al., 2009), which includes two 6-item measures of Positive Affect and Negative Affect, (b) the 5-item Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985), (c) the 5-item Meaning in Life Questionnaire (MLQ; Steger, Frazier, Oishi, & Kaler, 2006), and (d) the 20-item Center for Epidemiological Studies-Depression scale (CES-D; Radloff, 1977). Based on past research, we defined SWB as a combination of high PA, low NA, and high feelings of life satisfaction (Diener & Lucas, 1999; Sheldon, 2013). Based on this definition, we created a composite measure that contains each of these SWB measures and focus our primary analyses on the effect of volunteering on this SWB composite measure. To provide measures of belonging at Times 1 and 2, participants completed (a) the UCLA Loneliness Scale (Russell, 1996) and (b) the Social Connectedness Scale (SCS; Lee, Draper, & Lee, 2001). At Times 1 and 2, participants also completed the 5-item Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983).

Exploratory measures

To explore three potential moderators of the CSL benefits, students completed a 1-item measure assessing satisfaction with their volunteer placement (Stukas et al., 2016), a 2-item measure assessing personal motivations (Stukas et al., 2016), and a 1-item measure assessing the extent to which they felt like their decision to volunteer was elective vs. required (Horn, 2012).

Eligibility criteria and exclusions

We sent all students an email inviting them to participate in a brief 10–15 min online survey (see the Supplemental Data). Only students who were 18 years of age or older (the legal age of consent in the United States) were eligible to complete the study in its entirety; we did not exclude any participants based on this eligibility requirement.

Because we were interested in examining whether volunteering *causes* improvements in psychological well-being, we excluded all participants who did not complete Time 2 measures. This decision resulted in 16 list-wise deletions (see the Results section for more details). Because we used validated measures of SWB that restricted participants' responses on a Likert-type scale, we did not define or identify outliers, and we conducted the proposed analyses examining all of the data that we collected from eligible participants. The key variables of interest were approximately normally distributed.

Power analysis for preregistered hypotheses

Given the limited amount of experimental research in this area, it is difficult to estimate precise effect sizes due to the relative novelty of the proposed work. Meta-analyses suggest that typical effects in social psychology yield small to medium effects (approx., $r = 0.21$; Richard, Bond Jr. & Stokes-Zoota, 2003). Consequently, we used G*Power 3 to calculate the **sample size needed to detect a minimum effect of $r = 0.21$ with 80% power** (Cohen, 1988). To achieve 80% power to detect an effect size of $r = 0.21$ ($d = 0.40$), we required at least 180 participants to **detect significant effects of volunteering on our SWB measures of interest.**¹ In Years 1 and 2 of the study, we collected well-being data from 65 CSL program participants and 37 participants from the wait-list. In Year 3 of the study, we collected well-being data from 167 program participants and 19 participants from the wait-list. Upon combining data from Years 1–3 of the study, we successfully collected data from 232 CSL participants and 56 wait-listed participants. Accounting for unequal sample sizes, and based on an estimated effect size of $r = 0.21$ using a two-tailed test, this data collection resulted in 82% power to detect a moderate effect of volunteering on our key well-being outcomes.

Our stopping rule for the data collection in this project was to collect data from as many eligible participants as possible. It is worth noting that in Years 1 and 2 of the study, we collected data on SWB as part of a larger project examining the potential health benefits of volunteering. Because this larger project involved the collection of complex physiological measures, the stopping rule for Years 1 and 2 was to collect data from approximately 50 participants per year, as this was the maximum number of participants that we had the capability of running through our complex physiological measures. Although the purpose of the current article is to examine whether volunteering exerts a causal influence on SWB, the methods and data for this larger study (including physical health measurements) are available through the Open Science Framework: <https://osf.io/aqi5j/>.

Results

Preprocessing checks

We first conducted a t -test to examine whether there was differential attrition for participants assigned to the CSL program or to the wait-list. Across the three years of the study, in the control condition, six participants (9.7%) did not complete the study in its entirety. In the experimental condition, 10 participants (4.1%) did not complete the study in its entirety; these proportions did not significantly differ from one another, $\chi^2(1,$

Table 1. Demographic characteristics of control vs. experimental conditions.

	Control (<i>N</i> = 56)	Experimental (<i>N</i> = 232)	Statistics
Gender (% female)	64.3%	68.5%	$\chi^2(1, 288) = 4.24, p = 0.644$
No. of work hours	8.52 (9.67)	9.21 (12.53)	$F(1, 287) = 0.149, p = 0.700$
Caucasian (% white)	75.0%	68.3%	$\chi^2(1, 286) = 0.966, p = 0.326$
Perceived SES	7.12 (1.56)	6.79 (1.56)	$F(1, 287) = 2.16, p = 0.143$
Age	18.89 (0.46)	18.89 (0.72)	$F(1, 287) = 0.003, p = 0.960$

$N = 304) = 3.04, p = 0.081$. These results suggest a marginal effect whereby students who were randomly assigned to the wait-list were slightly but not significantly more likely to drop out over the course of the study as compared to students randomly assigned to complete the CSL program.

We then examined whether there was differential attrition based on key demographic variables that might be related to T2 well-being as follows: gender, age, T1 SWB, subjective SES, and the average number of hours that students reported working each week. There were no differences between groups on these demographic variables (Supplemental Data).

Consistent with the results of the pilot study, there was minimal program-based attrition; across the three years of the study, four students withdrew from the CSL program (1.72%). The low dropout rates are likely due to the fact that we implemented the survey quite close to the start of the course, thus most students who were assigned to the CSL program were committed to participating in the program. We were unable to obtain permission from the CSL program to confirm the names of the individuals who dropped out of the study; however, the minimal attrition rates suggest that attrition is unlikely to have significantly impacted any of the key results reported in text. Importantly, random assignment was successful at balancing conditions on relevant demographics including age, gender, and perceived SES (Table 1).

A critical assumption of this research is that participants in the CSL program reported volunteering more hours on average each week as compared to students assigned to the wait-list. To test this assumption, we conducted a between-subjects *t*-test to ensure that participants who were randomly assigned to participate in the CSL program reported volunteering more hours per week on average as compared to students randomly assigned to the wait-list. This assumption was confirmed: participants who were randomly assigned to participate in the CSL program reported volunteering significantly more hours per week ($M = 10.69, SD = 2.75$) as compared to students assigned to the wait-list ($M = 4.00, SD = 3.72$), $t(70.11) = 12.65, p < 0.001, 95\% \text{ CI } [5.64, 7.75]$.²

Preregistered analyses

Bayesian analyses

To establish the strength of evidence represented by our data, we computed a Bayes factor analysis corresponding to the between-subjects *t*-test model on the difference score between T2 and T1 in SWB under control and experimental conditions. As described in the Methods section, we defined SWB as a combination of high PA, low NA, and high feelings of Satisfaction with Life (SWL). Thus, our SWB composite was

Table 2. Bayes factors for key SWB composite measure and tertiary measures.

Variable	Bayes factor
SWB	0.09
PA	0.07
NA	0.06
SWL	0.11
CES-D	0.05
PSS	0.02
SCS	0.20
UCLA	0.28
MLQ	0.23

See text for description of scale abbreviations. M_0 = null model, M_1 = condition effect.

For all of our Bayes factors analysis, we compared the likelihood of observing the data under the null model ($d = 0$) and the alternative model, which is a normal distribution with a mean of 0.50 and a standard deviation of 0.15. Based on our preregistered model specifications, the Bayes factor had to be below or equal to 0.33 or above or equal to or above 1.33 to strongly suggest evidence for the null or alternative. All of the comparisons reported above strongly favor M_0 .

created by combining the standardized SWL + PA measures and subtracting the standardized NA measure.

Following the approach advocated by Dienes (2014), we calculated the Bayes factor B_{10} by comparing M_1 , the model with the condition effect, and M_0 , the null model. Because our goal was to contrast the null hypothesis to an alternative hypothesis that the effect is moderate in size, we used a normal distribution prior with a mean of 0.50 and a standard deviation of 0.15 for the standardized effect size (e.g. the difference score between standardized T2 and T1 measures). The Bayes factor was computed using the online calculator available at Zoltan Dienes' website.³ To evaluate the size of the Bayes factor, we used the conventional criteria of 1/3 and 3 (e.g. Dienes, 2014). Under these criteria, we obtained a very low Bayes factor in favor of H_0 , $B_{10} = 0.09$. B_{10} fell below our preregistered criterion of 0.33. **These results provide strong evidence against differences between the control and experimental conditions on SWB.** In these analyses, H_0 was 11.11 times more likely than H_1 to have generated the data we observed. We also examined the impact of volunteering on several measures that are distinct but related to SWB including meaning in life, depression, social connection, loneliness, and perceived stress. Across all of these outcomes, we found evidence in favor of the null hypothesis, that is, that the observed data were more likely to occur under H_0 than under H_1 (see Table 2 for the Bayes factors associated with each analysis).

Exploratory analyses

We also conducted additional analyses to assess whether the benefits of CSL participation differed based on the characteristics of the volunteers (e.g. baseline depression, gender, SES) or the characteristics of the volunteer experience (e.g. satisfaction with the volunteer placement). It is worth reiterating that these additional analyses are exploratory and are therefore likely underpowered to obtain conclusive findings in the context of this study.

Individual characteristics

There was no evidence that CSL participation had greater benefits for individuals with higher self-reported T1 depressive symptomology (see the Supplemental Data). There was also no reliable evidence that CSL participation had differential benefits for women and men. However, there were statistically marginal effects suggesting that men might have experienced greater T2 PA as a result of CSL participation (Supplemental Data). There was no reliable evidence that volunteering had differential effects depending on participants' SES or depending on the number of hours that students reported volunteering each week (Supplemental Data).

Volunteer placement characteristics

Looking within the experimental condition only, and controlling for T1 well-being, students who reported higher satisfaction with their CSL placements were also more likely to report greater T2 well-being. Interestingly, students who reported greater satisfaction with their CSL placements reported *lower* T2 social connection (see the Supplemental Data). The benefits of CSL participation did not vary depending on students' personal motivations (see the Supplemental Data) or students' reports of whether they felt that their volunteer placement was elective as opposed to required (see the Supplemental Data). However, in these analyses, there was a statistically marginal effect suggesting that students who thought that their volunteer placements were elective vs. required experienced greater T2 life satisfaction (see the Supplemental Data).

Additional notes

See (Figure 1) for a histogram plot representing the difference scores between the T2 and T1 SWB composite measure for each group. Histogram plots for each individual measure are available through the Open Science Framework (<https://osf.io/aqi5j/>).

Discussion

To the best of our knowledge, this is the first empirical investigation assessing the causal impact of an academic CSL program on the emotional health of college students. In a sufficiently powered experiment with 288 participants, we found conclusive evidence in support of the null model, signifying that there were no differences between the experimental and control groups in SWB as measured over the course of an academic semester. Specifically, we found that there was no moderate benefit of volunteering on SWB. Although there might have been a small effect, in the context of this project, we were not interested in detecting effects of this magnitude. The conclusive evidence in support of the null model occurred despite the large body of research suggesting the existence of a moderate association of volunteering with enhanced well-being. Why then did our study largely fail to document any causal benefit of volunteering through CSL participation on well-being?

First and foremost, it is difficult to study the effects of psychosocial experiments on psychological well-being in healthy populations (Miller & Cohen, 2001). Our participants were generally healthy, happy, and from high SES backgrounds. For example, in this

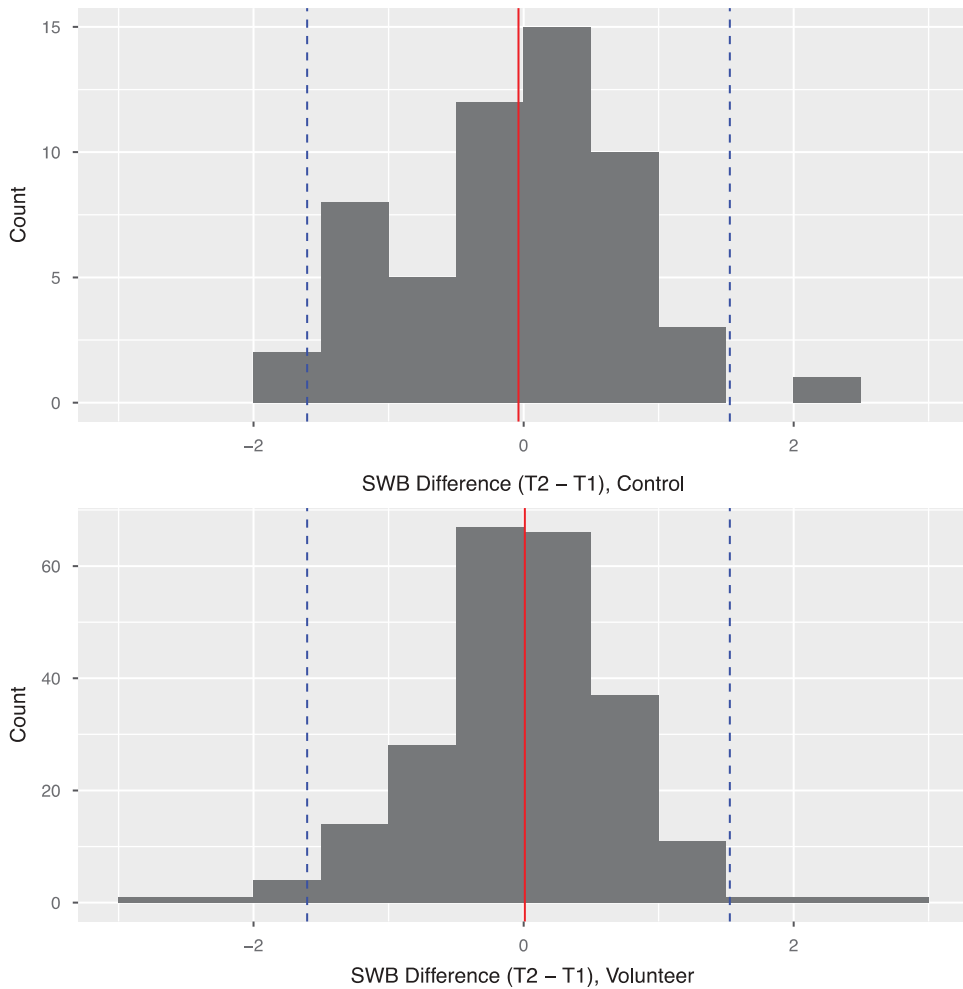


Figure 1. Histograms plotting the T2 vs. T1 SWB difference across groups, with 95% CI.

sample, at Time 1, 4.9% of the students in this study reported CES-D scores that were indicative of being at risk for clinical depression (Radloff, 1977). This percentage is lower than other published research which indicates that up to 20%+ of college students are at risk for clinical depression based on their CES-D scores (e.g. Wilson et al., 2014). Consequently, these null results may stem from the fact that it is harder to improve the well-being of a relatively healthy population. Research also suggests that volunteering may exert the greatest benefits among more vulnerable populations (Schreier et al., 2013, Van Willigen, 2000, Wheeler, Gorey, & Greenblatt, 1998). Thus, future work should enroll individuals experiencing health problems, or stressors that disrupt psychological processes (e.g. victims of natural disasters) to better understand the psychological benefits of formal volunteering, such as CSL participation.

Secondly, we examined the benefits of volunteering 10–12 weeks after the experimental group started their placements. It is therefore possible that we missed a critical period in which volunteering exerts its greatest effects on SWB. In the experimental

study discussed in the Introduction section, volunteering significantly decreased cardiovascular disease risk factors among low-income high school students (Schreier et al., 2013). In this study, researchers did not conduct follow-up health measures until four weeks after students had completed their volunteering placement. Together with the results reported here, these studies suggest that there may be a critical window during which time the well-being benefits of volunteering emerge. For example, the benefits of volunteering might only emerge after the placements have finished, and individuals are no longer undergoing the additional demands that result from engaging in weekly acts of formal volunteering. Relatedly, the benefits of volunteering might only emerge during or immediately following the act of formal volunteering.

It is also possible that the positive effects of volunteering were negated by the demands of participating in the CSL program. The program that we studied was particularly intensive: participating students completed substantial coursework in addition to volunteering 10–12 h each week. Research suggests that volunteering at extremely high levels is associated with decreases in well-being (Grant & Schwartz, 2011; Windsor et al., 2008) and that balancing the stressors of volunteering is important for reaping the benefits of formal volunteer work (Varma et al., 2015). It is therefore possible that the commitment required for the CSL program was too high for students to experience emotional benefits. Given that this program might have posed extensive demands, it is critical for future work to study programs of various lengths and intensities to understand the circumstances wherein volunteering leads to improved psychological health for college students. As students in the control group also reported volunteering a few hours a week on average, future work should examine the benefits of volunteering with a more stringent control group who does not report volunteering.

Because students were participating in this CSL program for course credit, it is possible that they felt they were participating for external reasons (e.g. grades) as compared to internal reasons (e.g. a desire to help). When individuals feel that they are engaging in helping behavior due to external factors, they are less likely to gain emotional rewards (Weinstein & Ryan, 2010). It is worth noting that students could have taken other classes to fulfill their requirements that did not include service learning, thus this proposition is unlikely to explain the null results that we observed. Indeed, there was very limited evidence that students who perceived their participation in the CSL program as voluntary experienced greater well-being. Across the 10 well-being measures studied, intrinsic motivation predicted greater T2 well-being on only one of the well-being outcomes examined. These results suggest that the extent to which students felt like the volunteer program was elective vs. required did not play a critical role in predicting the benefits of volunteering, although more experimental research is needed to substantiate this claim.

Although our study does not provide evidence that a common form of volunteering (CSL) improves the well-being of participating college students, it is important to acknowledge the numerous benefits of CSL. Experimental research suggests that CSL can improve a number of outcomes for students including political engagement (Allen et al. 1997; Seider, Gillmor, & Rabinowicz 2012), social responsibility (Markus et al., 1993), and academic achievement (Strage, 2000), and research has documented a robust relationship between CSL and student learning outcomes (e.g. Novak et al.,

2007; Warren, 2012). More experimental research is needed to further explore the when and for whom the causal benefits of CSL participation emerge among college students.

Conclusion

Volunteering might not always yield well-being benefits. The research presented here highlights the critical importance of employing experimental methods to examine the causal benefits of CSL and other forms of volunteering. These data also suggest that previous correlational and longitudinal research might have overestimated the broad benefits of volunteering due to the fact that changes in volunteer participation often track with other positive changes in people's lives, including reduced work hours and improved financial stability (Ruhm, 2000; Wilkinson, 1992). Future work should causally examine individual differences in reaping the rewards of prosocial behavior and investigate the characteristics of formal volunteer programs that most reliably improve well-being. In conclusion, more experimental work is needed to understand when and for whom volunteering bolsters SWB.

Notes

1. Although it is conceivable that volunteering might exert a smaller effect on well-being, from a practical perspective, an effect that is smaller than $r = 0.21$ is unlikely to provide compelling evidence about the value of volunteering for increasing well-being.
2. Because the assumption of homogeneity of variances was violated in these analyses, we have reported the results using the Levene's correction for unequal variances between groups.
3. http://www.lifesci.sussex.ac.uk/home/Zoltan_Dienes/inference/bayes_factor.swf.

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