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UNIVERSITY OF CALIFORNIA, MERCED

An Evaluation of the Partial Mediation of Volunteerism
on the Effects of Personality on Life Satisfaction:
A Structural Equation Model

A thesis submitted in partial satisfaction of the requirements for the degree of
Master of Arts

in

Psychological Sciences

by

Raymond G. Feilner, Jr.

Committee in charge:

Professor Jack L. Vevea, Chair
Professor Sarah Depaoli
Professor Deborah J. Wiebe

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University of California, Merced

2017

Dedication

I would like to dedicate this thesis to my family, especially my father, mother, and brother, and to all of those who serve our fellow human beings from the sheer kindness of their hearts. Without the support of my family, I would never have achieved this goal. They have provided me guidance and have always encouraged me to pursue my dreams. They instilled the love of all people within me. They served as excellent role models and involved me in a variety of academic, social, and volunteer activities since I was a child. Thank you.

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Abstract

An Evaluation of the Partial Mediation of Volunteerism
on the Effects of Personality on Life Satisfaction:
A Structural Equation Model

by

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Master of Arts in Psychological Sciences
University of California, Merced, 2017
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Life satisfaction is universally important and a pinnacle of human pursuits. Uncontrollable factors, such as personality, influence life satisfaction. Interventions, such as volunteering, also impact life satisfaction. Previous studies have provided evidence that personality traits affect life satisfaction, that volunteerism impacts life satisfaction, and that personality traits influence volunteerism. After synthesizing these prior results, I employed methods from structural equation modeling (SEM) to explore the partial mediation of volunteerism on the effects of the Big Five personality traits on life satisfaction. Contrary to the hypothesis, the SEM did not fit the observed data well. However, the analyses were limited by highly skewed distributions of item responses. Nonetheless, there was not sufficient statistical evidence to support the claim that frequency of volunteering partially mediates the effects of the Big Five personality traits on current life satisfaction.

Introduction

Life satisfaction is a measure of eudaimonic subjective well-being, which has been considered the ultimate pursuit since ancient times (Aristotle, 2013). So, how do we achieve greater life satisfaction? Well, that is the enigma on which I aim to provide further illumination in this study. I do so by examining the relationships between personality, volunteerism, and life satisfaction.

The foundation of this analysis sits on three specific relationships. First of all, personality affects life satisfaction (Steel, Schmidt, & Shultz, 2008; Extremera & Fernández-Berrocal, 2005; Lounsbury, Park, Sundstrom, Williamson, & Pemberton, 2004; Heller, Watson, & Ilies, 2000; DeNeve & Cooper, 1998). Secondly, volunteerism affects life satisfaction (van Emmerik, Jawahar, & Stone, 2004; Thoits & Hewitt, 2001). Thirdly, personality affects volunteerism (King, Jackson, Morrow-Howell, & Oltmanns, 2014; Zaskodna, Simek, & Mlcak, 2013; Mellor, Hayashi, Stokes, Firth, Lake, Staples, & Cummins, 2009; Lodi-Smith & Roberts, 2007). After synthesizing those findings, it seems plausible that volunteerism may partially mediate the relationship between personality and life satisfaction. More specifically, I hypothesize that the Big Five personality traits affect life satisfaction and that frequency of volunteerism partially mediates those relationships. In this study, I aim to reveal the overarching structural relationships amongst the previously evidenced relationships. I do so by employing statistical techniques from structural equation modeling (SEM) to examine the partial mediation model of volunteerism on the effects of personality on life satisfaction.

Life satisfaction is the cognitive judgement component of subjective well-being, and is distinct from the positive and negative affective components of subjective well-being (Lucas, Diener, & Suh, 1996). The Big Five personality traits (Costa & McCrae, 1985) have been shown to affect life satisfaction (DeNeve & Cooper, 1998). Intrinsic dispositional factors, such as personality, influence subjective well-being (Steel, Schmidt, & Shultz, 2008; DeNeve & Cooper, 1998). Extrinsic situational factors, such as social environment and life events, also impact subjective well-being (Steel, Schmidt, & Shultz, 2008).

Greater frequency of volunteering results in greater life satisfaction (Thoits & Hewitt, 2001). Prior studies have shown that personality influences volunteerism (Smith, 1994). Volunteers are more extraverted (King, Jackson, Morrow-Howell, & Oltmanns, 2014; Zaskodna, Simek, & Mlcak, 2013; Mellor, Hayashi, Stokes, Firth, Lake, Staples, & Cummins, 2009), open (King, Jackson, Morrow-Howell, & Oltmanns, 2014), agreeable (King, Jackson, Morrow-Howell, & Oltmanns, 2014; Zaskodna, Simek, & Mlcak, 2013), and conscientious (King, Jackson, Morrow-Howell, & Oltmanns, 2014; Zaskodna, Simek, & Mlcak, 2013) than non-volunteers. Volunteers have lower levels of neuroticism than non-volunteers (King, Jackson, Morrow-Howell, & Oltmanns, 2014; Mellor, Hayashi, Stokes, Firth, Lake, Staples, & Cummins, 2009). Openness to experience is positively correlated with amount of time spent volunteering (van Emmerik, Jawahar, & Stone, 2004). Conscientiousness is negatively correlated with amount of time spent volunteering (van Emmerik, Jawahar, & Stone, 2004).

If volunteerism partially mediates the relationship between personality and life satisfaction as hypothesized, then one may use that information to develop appropriate interventions to increase volunteerism to improve life satisfaction, customized to a particular set of personality traits. Volunteerism has a significant impact on our everyday lives. Volunteerism has been associated with a number of economic, social, and health benefits. Volunteers contribute 8,100,000,000 hours of service, which value \$173,000,000,000.00 (Forbes & Zampelli, 2014). Given government deficits and budget cuts to a number of social programs at various levels of government globally, volunteerism is becoming increasingly important as a means to fill in some of the gaps. Accordingly, we need to be able to efficiently attract more volunteers of different types with diverse skills to serve the needs of the public. In doing so, we must determine the impacts of personality on volunteerism and the psychological benefits that volunteers receive in terms of life satisfaction, more broadly.

Moreover, low levels of life satisfaction have been associated with a number of negative health outcomes, including lower self-rated perceptions of health (Palmore & Luikart, 1972; Melin, Fugl-Meyer, & Fugl-Meyer, 2003), higher prevalence of somatic diseases (Huovinen, Kaprio, & Koskenvuo, 2001), higher prevalence of depressive symptoms and anxiety (Strine, Chapman, Balluz, Moriarty, & Mokdad, 2008), and adverse health behaviors (Strine, Chapman, Balluz, Moriarty, & Mokdad, 2008). Since volunteerism helps improve the community, the life satisfaction of the volunteers, and the health of the volunteers, volunteer programs should focus their recruitment efforts to target people with certain personality traits who would benefit the most. For example, conscientiousness is predictive of increased volunteer social investment (Lodi-Smith & Roberts, 2007). However, people who would otherwise be likely to become engaged in volunteer work may remain unaware of relevant opportunities. Alternative methods of recruitment may be recommended for people who are less likely to become engaged in volunteer activities, especially given that doing so may improve both their own lives and those of the people that they would aid.

Past research has also shown that different modes of outreach may be better suited to individuals with different personality traits. For example, people higher in extraversion and openness and those lower in emotional stability use social media more (Correa, Hinsley, & Gil de Zúñiga, 2010). Recruitment efforts for volunteer activities that require greater levels of interpersonal interaction and novel approaches may be better served by using social media than for other volunteer activities with lower requirements of public interaction. People higher in openness have been found to be more receptive to specific prosocial messages, such as increasing voter turnout (Gerber, Huber, Doherty, Dowling, & Panagopoulos, 2013). Message content should be tailored to individuals with different personality traits to achieve the most effective response.

Personality traits also directly affect life satisfaction. Past research has shown that greater life satisfaction is associated with extraversion (Extremera & Fernández-Berrocal, 2005; Lounsbury, Park, Sundstrom, Williamson, & Pemberton, 2004; Heller, Watson, & Ilies, 2004), openness (Lounsbury, Park, Sundstrom, Williamson, & Pemberton, 2004), agreeableness (Extremera & Fernández-Berrocal, 2005; Heller, Watson, & Ilies, 2004), and conscientiousness (Extremera & Fernández-Berrocal, 2005; Heller, Watson, & Ilies, 2004; Lounsbury, Park, Sundstrom, Williamson, & Pemberton, 2004). Neuroticism is

associated with lower levels of life satisfaction (Extremera & Fernández-Berrocal, 2005; Lounsbury, Park, Sundstrom, Williamson, & Pemberton, 2004; Heller, Watson, & Ilies, 2004). Those relationships may be partially mediated by job satisfaction, and marital satisfaction or life satisfaction may mediate the effects of personality traits on both job satisfaction and marital satisfaction (Heller, Watson, & Ilies, 2004). The effects of neuroticism, openness, and conscientiousness on life satisfaction are mediated through self-esteem (Kwan, Bond, & Singelis, 1997). The effects of extraversion and agreeableness on life satisfaction are mediated through relationship harmony (Kwan, Bond, & Singelis, 1997). The effects of extraversion on life satisfaction are mediated through both self-esteem and relationship harmony (Kwan, Bond, & Singelis, 1997). The relationships between life satisfaction, the cognitive component of subjective well-being, and both extraversion and neuroticism are mediated by hedonic balance, the affective component of subjective well-being (Schimmack, Radhakrishnan, Oishi, Dzokoto, & Ahadi, 2002).

Past studies have also assessed the impact of volunteerism on volunteers' life satisfaction and their subjective well-being more generally. A number of mental health benefits, as well as a few negative outcomes, have been associated with volunteerism (Black & Living, 2004). Increased volunteerism may also lead to higher levels of self-efficacy (Black, & Living, 2004), overall life satisfaction (Wheeler, Gorey, & Greenblatt, 1998; Oman, Thoresen, & McMahon, 1999), and lower mortality rates (Oman, Thoresen, & McMahon, 1999). Longitudinal studies indicate that prior frequency of volunteering predicts greater life satisfaction (Thoits & Hewitt, 2001). Greater subjective well-being may also predict an increased frequency of volunteering. That relationship is fully mediated by participation in religious and secular community group membership. (Thoits & Hewitt, 2001). However, people reporting a very high number of hours spent volunteering report higher levels of negative affect (Windsor, Anstey, & Rodgers, 2008). Community volunteer groups may wish to utilize such information when recruiting new volunteers and to retain the volunteers that they have recruited already.

So, after synthesizing the current evidence, it seems worthwhile to evaluate whether the Big Five personality traits affect life satisfaction and whether the frequency of volunteerism partially mediates those relationships. In this study, I assess those relationships to provide useful information that civic leaders and policymakers may use to better understand the roles of personality and volunteerism in predicting life satisfaction.

Method

Participants

The participants included 8,984 people born between 1980 and 1984. Of these, 4,599 (51%) were males and 4,385 (49%) were females. Of these, 4,665 (51.9%) were non-black/non-Hispanic, 2,335 (26%) were black non-Hispanic, 1,901 (21.2%) were Hispanic or Latino, and 83 (0.9%) were of mixed races or ethnicities.

In 2007, 1566 (17.43%) of the participants were not interviewed. (See Table 1.) Of those 1566 participants, 785 (50.13%) refused to participate and 320 (20.43%) were not able to be located (U.S. Bureau of Labor Statistics, 2017). In 2008, 1494 (16.63%) were not interviewed. (See Table 1.) Of those 1494 participants, 621 (41.57%) refused to participate and 274 (18.34%) were not able to be located (U.S. Bureau of Labor Statistics,

2017). Other reasons for missing data included the deaths of participants, refusals by gatekeepers, respondents' handicaps, and respondents' inaccessibility due to incarceration and military service.

Materials

In this study, all statistical calculations were performed using RStudio version 1.0.136 (RStudio Team, 2015) on an Apple MacBook Pro with a 2.5 GHz Intel Core i5 processor running macOS Sierra, version 10.12.6 (16G29). The R packages used in this study included lavaan (Yves, 2012), semPlot (Epskamp & Stuber, 2017), psych (Revelle, 2017), lattice (Sarkar, 2008), and mice (van Buuren & Groothuis-Oudshoorn, 2011).

Instrument

I analyzed the data collected during the first 17 rounds of the National Longitudinal Survey of Youth 1997 (NLSY97; U.S. Bureau of Labor Statistics, 2017), which were obtained between 1997 and 2013. The endogenous variables that were used in this study's analyses included a measure of current overall life satisfaction and a measure of frequency of unpaid volunteer work. The exogenous variables included measures of the Big Five personality traits.

The life satisfaction item stated "Thinking about your life since [date of last interview], would you say that overall this has been a very good time in your life, a pretty good time in your life, a pretty bad time in your life, or a very bad time in your life?" (U.S. Bureau of Labor Statistics, 2017). The coded responses included "Very Bad", "Pretty Bad", "Mixed", "Pretty Good", and "Very Good". It was administered in 2007.

The volunteerism item stated "In the last 12 months, how often did you do any unpaid volunteer work, including activities aimed at changing social conditions, such as work with educational groups, environmental groups, landlord/tenant groups, or other consumer groups, women's groups or minority groups?" (U.S. Bureau of Labor Statistics, 2017). The response options included "never", "1 - 4 times", "5 - 11 times", and "12 times or more". It was administered in 2007.

The personality items all began with "Using a scale from 1 to 7, where 1 means disagree strongly and 7 means agree strongly, please rate how well each pair of traits applies to you, even if one characteristic applies more strongly than the other." (U.S. Bureau of Labor Statistics, 2017). The response options included 1 for "Disagree strongly", 2 for "Disagree moderately", 3 for "Disagree a little", 4 for "Neither agree nor disagree", 5 for "Agree a little", 6 for "Agree moderately", and 7 for "Agree strongly". Those items were administered in 2008.

The personality trait indicators were loaded onto each of the Big Five personality factors in the same manner that Gosling, Rentfrow, and Swann (2003) did. Each was measured by one manifest variable that is positively associated with the personality trait and one manifest variable that is negatively associated with the personality trait. The adjectives used when measuring neuroticism included "anxious, easily upset" and "calm, emotionally stable". Those used when measuring extraversion were "extraverted, enthusiastic" and "reserved, quiet". Those used to determine openness included "open to new experiences, complex" and "conventional, uncreative". Those used to assess agreeableness were "sympathetic, warm" and "critical, quarrelsome". Those used to when measuring conscientiousness included "dependable, self-disciplined" and "disorganized, careless".

Procedure

First, I rescored the life satisfaction item, which had response values out of their expected order. I reordered the responses such that 1 represents “very bad time”; 2 represents “pretty bad time”; 3 represents “mixed”; 4 represents “pretty good time”; and 5 represents “very good time”. I reverse-scored the negative personality trait items for additional clarity. I also recoded the ordinal scale used to measure participants’ frequencies of volunteering. The recoded integer scale reflects each of the original response option’s minimum thresholds. The recoded measures were equal to the lowest number of times that participant may have did unpaid volunteer work. The newly rescaled response options were 0 for “never”; 1 for “1 - 4 times”; 5 for “5 - 11 times”; and 12 for “12 times or more”.

After preparing the data for analysis, I examined several descriptive statistical measures using the R package, psych (Revelle, 2017), and other standard R functions. I assessed participants’ responses on each item and evaluated how reasonable each of the variable associations seemed to be. I started by examining the histograms of item responses for each variable using the R package, lattice (Sarkar, 2008). Then, I assessed the correlations between each pair of variables used in this study. In addition to the more familiar Pearson product-moment correlation coefficient (r), I evaluated Spearman's rank correlation coefficient, also known as Spearman's rho (ρ). It is a more conservative estimate than the Pearson product-moment correlation coefficient (r). It is a non-parametric statistic used to measure rank correlation. It does not make the assumption that differences between scaled responses are equal nor that the relationships between the responses are linear.

Next, I imputed values for non-responses using the R package, mice (van Buuren & Groothuis-Oudshoorn, 2011). Specifically, I performed multiple imputation by chained equations with 5 iterations to handle cases of missing data. I also applied listwise deletion for comparison.

I used the R packages, lavaan (Yves, 2012) and semPlot (Epskamp & Stuber, 2017), to conduct confirmatory factor analyses (CFA) of the structure of the Big Five personality traits. This was done to verify their expected relationships with the assumed model. The indicator variables of the five latent personality traits were chosen in accordance with commonly used adjectives for each personality trait, namely neuroticism, extraversion, openness, agreeableness, and conscientiousness. For each of the five latent personality traits, one indicator variable represented the positive poll and one indicator variable represented the negative poll, and was accordingly reverse-scored.

I assessed the associations between the indicator variables used to measure the three main constructs, namely frequency of volunteering, life satisfaction, and the 5 latent personality traits. Then, using the R packages, lavaan (Yves, 2012) and semPlot (Epskamp & Stuber, 2017), I evaluated the hypothesis that frequency of volunteering mediates the relationship between the effects of each of the five latent personality traits on current life satisfaction using SEM. SEM requires larger samples to be appropriately powered. This study uses a sufficiently large sample ($n = 8,984$) and thereby offers us the opportunity to evaluate the hypothesis that frequency of volunteering partially mediates the effects of personality traits on life satisfaction.

Results

I began by assessing the descriptive statistics and the histograms of item responses. (See Table 2 and Figures 1-12.) The distributions of responses to some of the personality trait indicators, current life satisfaction, and frequency of volunteering were highly skewed.

On the item measuring current life satisfaction, 1023 (55.93%) of the 1829 total respondents to that item all chose the same response, namely “pretty good time”. That is more than half of all respondents. Moreover, 1520 (83.11%) of the respondents chose either “pretty good time” or “very good time”. (See Figure 1.) Few expressed low levels of current life satisfaction.

On the item measuring frequency of volunteering, 4736 (65.38%) of the 7244 total respondents to that item volunteered 0 times in the last year. In other words, nearly two thirds of all respondents chose the minimum pole, namely “never”. Of those that did unpaid volunteer work, 1756 (70.02%) volunteered 1 - 4 times. (See Figure 2.) Very few volunteered more than 4 times.

When examining the responses to the personality trait indicators on a 7-point scale, note that the distributions of responses to three items were not very skewed and had median values of “agree a little”, “neither agree nor disagree”, or “disagree a little”. Those items measured the extent to which respondents agreed that they are “anxious, easily upset”, “reserved, quiet”, and “critical, quarrelsome”. (See Table 2.) Respectively, they were the positive neuroticism indicator, the negative extraversion indicator, and the negative agreeableness indicator.

The distributions of responses to two personality trait items were somewhat skewed, had modes that were not at the maximum or minimum response options, and had means that were either greater than 5, “agree a little”, or less than 3, “disagree a little”. Those items measured how much respondents agreed that they are “calm, emotionally stable” and “extraverted, enthusiastic”. (See Table 2.) Respectively, they were the negative neuroticism indicator and the positive extraversion indicator.

The distributions of responses to five personality trait items were very skewed and had modes at the maximum or minimum response options, namely at 1, “disagree strongly” or 7, “agree strongly”. Those items measured the extent to which respondents agreed that they are “open to new experiences, complex”, “conventional, uncreative”, “sympathetic, warm”, “dependable, self-disciplined”, and “disorganized, careless”. (See Table 2.) They consisted of both of the openness indicators, the positive agreeableness indicator, and both of the conscientiousness indicators.

Next, I examined the Pearson product-moment correlation coefficients between each pair of items after applying listwise deletion. (See Table 3.) I supplemented those with Spearman's rank correlation coefficients between each pair of items after applying listwise deletion. (See Table 4.) Then, I examined the Pearson product-moment correlation coefficients between each pair of items after employing multiple imputation by chained equations. (See Table 5.) I supplemented those with Spearman's rank correlation coefficients between each pair of items after employing multiple imputation by chained equations. (See Table 6.)

I first assessed the associations between current life satisfaction and each of the personality trait items after applying listwise deletion. By using Spearman's rank

correlation coefficients between each pair of variables, I demonstrated that all of the personality trait indicators were significantly associated with life satisfaction at the 95% level of confidence, except for the items indicating openness. Those items included “open to new experiences, complex” ($r = -.01$; $p = .65$; $\rho = .00$; $p = .94$) and the reverse-scored item, “conventional, uncreative” ($r = .02$; $p = .33$; $\rho = .02$; $p = .35$). On the other hand, the strengths of correlation were greatest between life satisfaction and the indicators of neuroticism, namely “anxious, easily upset” and the reverse-scored item, “calm, emotionally stable”. Neuroticism was inversely correlated with life satisfaction. The strengths of correlation were nearly as great between life satisfaction and the indicators of extraversion, namely “extraverted, enthusiastic” and “reserved, quiet”. Extraversion were positively correlated with life satisfaction. Also, there were weak correlations between life satisfaction and the indicators of agreeableness, namely “sympathetic, warm” and “critical, quarrelsome”. Agreeableness was positively correlated with life satisfaction when employing Spearman’s rho. However, neither of the Pearson’s correlations were statistically significant at the 95% level of confidence. There were weak correlations between life satisfaction and the indicators of conscientiousness, namely “dependable, self-disciplined” and “disorganized, careless”. Conscientiousness was positively correlated with life satisfaction. (See Tables 3-6.)

Next, I assessed the association between current life satisfaction and frequency of volunteering after applying listwise deletion. Life satisfaction was weakly correlated with frequency of volunteering. Then, I assessed the correlations between frequency of volunteering and each of the personality trait items after applying listwise deletion. When I employed Spearman’s rank correlation, I discovered that each of the personality trait indicators were significantly associated with life satisfaction at the 95% level of confidence, except for “dependable, self-disciplined” ($r = .02$; $p = .10$; $\rho = .02$; $p = 0.05$), which had a p-value that was marginally greater than .05. Frequency of volunteering was weakly correlated with the indicators of neuroticism, namely “anxious, easily upset” and “calm, emotionally stable”. Neuroticism was inversely correlated with frequency of volunteering. Frequency of volunteering was also weakly correlated with the indicators of extraversion, namely “Extraverted, Enthusiastic” and “Reserved, Quiet”. Extraversion was positively correlated with frequency of volunteering. There were weak correlations between frequency of volunteering and the indicators of openness, namely “Open to New Experiences, Complex” and “Conventional, Uncreative”. Openness was positively correlated with frequency of volunteering. There were weak correlations between frequency of volunteering and the indicators of agreeableness, namely “Sympathetic, Warm” and “Critical, Quarrelsome”. Agreeableness was positively correlated with frequency of volunteering. There was also a very weak correlation between frequency of volunteering and the indicators of conscientiousness, namely “Dependable, Self-disciplined” and “Disorganized, Careless”. Conscientiousness was positively correlated with frequency of volunteering. (See Tables 3-6.)

To assess the personality trait items, I used CFA to assess the model in which each of the 5 latent personality traits (neuroticism, extraversion, openness, agreeableness, and conscientiousness) were measured by 1 positively scored item and 1 reverse-scored item. (See Figure 13-14.) To adjust for the Heywood case, the variance of the item pertaining to being extraverted and enthusiastic (EXT) was fixed to 1. Contrary to

expectation, there was sufficient statistical evidence at the 95% level of confidence to reject the null hypothesis that there was not a difference between the observed relationships in the data and those specified in the model, both when listwise deletion was applied ($\chi^2 = 1788.50$; $df = 26$; $p < 0.01$; $n = 7044$) and when multiple imputation by chained equations was applied ($\chi^2 = 2414.61$; $df = 26$; $p < 0.01$; $n = 8,984$). Moreover, the root mean square error of approximation (RMSEA) of the model was 0.10 ($p < .01$), both when listwise deletion was used and when multiple imputation by chained equations was used. Furthermore, there was sufficient statistical evidence to reject the null hypothesis that the RMSEA is less than or equal to 0.05 ($p < .01$), both when listwise deletion and multiple imputation by chained equations were applied. Hence, the model fit was low. When listwise deletion was employed, the CFA model had a Tucker Lewis Index (TLI) of factoring reliability of 0.55 and a Comparative Fit Index (CFI) of 0.74. When multiple imputation by chained equations was employed, both the TLI and CFI were lower. It had a TLI of factoring reliability of 0.52 and a CFI of 0.73. Those fit indices were small. Thus, all of the fit indices demonstrated that the model fit was poor.

After initial data exploration, I evaluated the SEM in which frequency of volunteering partially mediates the relationship between personality traits and quality of life. (See Figures 15-16.) To adjust for the Heywood case, the variances of the items pertaining to being “extraverted, enthusiastic” (EXT) and life satisfaction (LS) were both fixed to 1. Contrary to expectation, there was sufficient statistical evidence at the 95% level of confidence to reject the null hypothesis that there is no difference between the observed relationships between the variables and those specified in the model, both when listwise deletion was applied ($\chi^2 = 539.66$; $df = 37$; $p < 0.01$; $n = 1,604$) and when multiple imputation by chained equations was applied ($\chi^2 = 2,881.76$; $df = 37$; $p < 0.01$; $n = 8,984$). The RMSEA of the model was 0.09, both when listwise deletion and multiple imputation by chained equations were applied. Furthermore, there was sufficient statistical evidence to reject the null hypothesis that RMSEA is less than or equal to 0.05 ($p < .01$), both when listwise deletion and multiple imputation by chained equations were applied. Hence, the model fit was low. When listwise deletion was employed, the SEM had a TLI of 0.44 and a CFI of 0.69. Though, when multiple imputation by chained equations was used, those fit indices were marginally greater. Using multiple imputation, the CFA model had a TLI of 0.46 and a CFI of 0.70. Those fit indices were small. Hence, all of the fit indices demonstrate that the model fit was low for the SEM.

When listwise deletion was applied, the path weights of the regressions of life satisfaction on neuroticism, extraversion, and openness to new experience were moderately strong within the SEM. However, the path weights of the regressions of life satisfaction on agreeableness and conscientiousness were very weak. The path weights of the regressions of frequency of volunteering on extraversion and openness to new experience were moderately strong. The path weights of the regressions of frequency of volunteering on neuroticism, agreeableness, and conscientiousness were very weak. Contrary to expectation, the path weight of the regression of life satisfaction on frequency of volunteering in the SEM was equal to 0 and, thereby, very weak. (See Figure 15.)

After implementing multiple imputation by chained equations, the path weights of the regressions of life satisfaction on neuroticism, agreeableness, and conscientiousness in the SEM were moderately strong. The path weights of the regressions of life satisfaction on extraversion and openness to new experience were weak. The path weights of the regressions of frequency of volunteering on neuroticism, extraversion, openness to new experience, agreeableness, and conscientiousness were very weak. Contrary to expectation, the path weight of the regression of life satisfaction on frequency of volunteering was very weak in our SEM. (See Figure 15.)

Discussion

In this study, I evaluated the hypothesis that the Big Five personality traits influence current overall life satisfaction and that frequency of volunteering partially mediates those relationships. I did so by fitting a SEM to data collected from the NLSY97. I separately implemented both listwise deletion and multiple imputation by chained equations. Then, I interpreted the results. I discovered that the SEM did not fit the data well in either condition. Specifically, frequency of volunteering was determined to be a poor predictor of life satisfaction. When I applied multiple imputation by chained equations, none of the Big Five personality traits were very predictive of frequency of volunteering. However, I provide several suggestions here to overcome data limitations and improve the methodological components.

When I applied listwise deletion, extraversion and openness were shown to predict both life satisfaction and frequency of volunteering moderately well. While neuroticism predicts life satisfaction moderately well, neuroticism very weakly predicts frequency of volunteering. However, agreeableness and conscientiousness are very weakly predictive of both life satisfaction and frequency of volunteering. Contrary to expectation, frequency of volunteering only very weakly predicts life satisfaction.

When I applied multiple imputation by chained equations, neuroticism, agreeableness, and conscientiousness were shown to predict life satisfaction moderately well, but not frequency of volunteering. In fact, none of the Big Five personality traits predict frequency of volunteering well. Moreover, frequency of volunteering does not predict life satisfaction well. In turn, this study does not provide sufficient statistical support to the claim that frequency of volunteering partially mediates the effects of the Big Five personality traits on life satisfaction.

One advantage of this study is its large sample size. However, many participants failed to provide responses to all of the items. So, multiple imputation by chained equations was utilized to handle the missing data from non-responses.

Another advantage is that the variability between participants was reduced by selecting people with similar demographic characteristics. The study selection criteria restricted participants to a single cohort of people born between 1980 and 1984. In this manner, effects may be accounted for under circumstances when increased variation would otherwise make certain effects less detectable. On the other hand, one drawback to the study's broader generalizability is that very age restriction. The sample is less representative than more diverse samples. Subsequent research should attempt to sample from a more representative segment of the population. That would substantiate broader generalizations.

Please note that this analysis relies on the assumption that personality traits are stable over time, particularly over the course of a year. Previous meta-analytic research supports the argument that personality traits are consistent and become increasingly consistent as one ages (Roberts & DelVecchio, 2000). Nonetheless, it is important to note that the personality trait items were administered in 2008, but the data were presumed to have been nearly the same in 2007, the year in which the rest of the items under investigation were administered. Subsequent research may be conducted in which the items are administered in the appropriate temporal order to further assess the partial mediation model presented in this study.

Another methodological decision to consider is the choice of scale used to recode each participant's frequency of volunteering. The recoded scale reflects the minimum number of times a participant would have had to do unpaid volunteer work to be included in the original ordered response category. Because the last response option, "12 times or more", only had a minimum threshold for participant inclusion and no maximum, a representative central value could not be reliably calculated for that response category. So, one of the reasons that the minimum threshold value was chosen was for consistency. Moreover, the lowest bins were disproportionately selected. Nearly two-thirds of all participants responded "never" (65%). Nearly another quarter responded "1 - 4 times" (24%). That means that 70% of those participants that volunteered at all, volunteered 4 times or less. So, it seems reasonable to also believe that for each of the original ordered response options, the underlying distributions of each true count response would also be positively skewed. Hence, it seemed reasonable to recode the original ordered response options as the minimum number of times a participant did unpaid volunteer work to be originally coded into that response category.

The treatment of missing data is another methodological decision to reflect upon. In this study, I implemented both listwise deletion and multiple imputation by chained equations. Using listwise deletion is appropriate when data are missing completely at random (MCAR). Otherwise, it may exclude a number of potentially useful data points and introduce bias. Each of the items that were used in this study garnered valid responses from over 96% of the participants who were presented each item. Note that 1566 (17.43%) of the 8,984 participants were not interviewed in 2007 and 1494 (16.63%) of the participants were not interviewed in 2008. After including the missing data from the participants who were not interviewed at all during those years, I determined that each of the personality trait items and the item measuring frequency of volunteering received valid responses from 80% to 83% of all 8,984 participants. Because 1,831 respondents were randomly selected to be presented with the item measuring life satisfaction and 2 of them did not provide valid responses, only 1,829 (20.36%) of all 8,984 participants gave valid responses to that item. (See Table 1.) Because less than 4% of the participants presented each item failed to provide a valid response, it may be appropriate to employ listwise deletion when conducting statistical analyses without a substantial loss of power. On the other hand, because a large percentage of the participants were not presented all of the items and the more relaxed assumption of missing at random (MAR) may be appropriate given the amount of missing data in the entire dataset, I also employed multiple imputation by chained equations for further comparison with the analyses that use listwise deletion.

The construct, volunteerism, was measured with a single manifest variable. Moreover, the median, first quartile, and minimum were all equal to 0, “never”, further reducing the strength of the statistical conclusions that may be drawn about volunteerism. (See Table 2.) That inhibited the ability of the current study to detect statistical relationships between frequency of volunteerism and other variables. That certainly reduces the probability of detecting partial mediation by volunteerism in the proposed model even if it were actually true. It further reduces the study’s ability to detect weak effects.

The use of other items with greater levels of discrimination would improve the ability to detect differences and make more precise assessments about participants’ levels of volunteerism. For example, one could measure frequency of volunteering in hours. The scale used in this study provides a lower measure of volunteerism for someone who volunteers 8-hour days every 3 months than for someone who volunteers 15 minutes 5 times a year. Future researchers should consider treating the construct of volunteerism as a latent variable and measure it with multiple manifest variables. They may also measure the construct of volunteerism using more than just ordinal values of frequency. Additional proxy variables may also provide measures of depth of engagement, duration of volunteering, the perceived impact of volunteer activities, personal reasons for volunteering, types of volunteer activities, and other components of volunteerism.

Another limitation is the use of a single manifest variable to measure the construct of life satisfaction. Further compounding the problem, more than half of all respondents responded 4, “pretty good time” (55.93%). In fact, the median and first quartile were equal, both being 4, “pretty good time”. (See Table 2.) The item’s low ability to discriminate between respondents reduces the predictive validity of the study. It reduces the ability to detect relationships between participants’ current life satisfaction ratings and other variables even if they actually existed, especially if the effect were weak. Items with greater levels of discrimination would improve the statistical power needed to detect differences and make more accurate assessments. People conducting subsequent research should measure the latent construct of life satisfaction with multiple manifest variables. Additional proxy variables may also measure factors contributing to life satisfaction, such as work satisfaction, satisfaction with personal relationships, and reasons for participants’ assessments of life satisfaction.

Subsequent research should consider taking advantage of previously validated instruments to assess life satisfaction, such as that created by Diener, Emmons, Larsen, and Griffin (1985). Life satisfaction may be measured in terms of current life satisfaction, overall assessments, and in contexts, such as work life, home life, and social life. Another reasonable alternative would be to use a norm-referenced item instead of a criterion-referenced item. By that, I mean one may elicit information about respondents’ life satisfaction compared to what they perceive that of others to be. Such proposed measures could help refine this analysis. The current study was limited to a direct elicitation of recent overall life satisfaction.

In this study, I also examined the direct effects of personality and the partial mediation of volunteerism on a single component of subjective well-being, namely life satisfaction. Future researchers may consider measuring the other components of

subjective well-being, such as positive and negative affect. That would extend our present finding to subjective well-being more broadly.

The observed personality trait data did not fit the standard five factor model of personality. The reliability of the CFA was limited by the small number of personality trait indicators measured and the skewed distributions of many of those personality trait indicators. Using more variables to measure each of the personality traits would improve reliability. Given the well-validated nature of the five factor model of personality, future researchers should adapt the current items to increase convergent validity. Follow-up studies should take advantage of previously validated instruments to assess personality traits (e.g., Costa & McCrae, 1985). That would provide additional construct validity and convergent validity to this analysis. The current analysis evaluated the plausibility of the partial mediation of the effects of the 5 latent personality traits on life satisfaction by volunteerism given a large body of publicly available data. However, future studies should extend these results using the best available tools at one's disposal to provide more reliable evidence. Given the moderate to high measures of skewness on 7 of the 10 personality trait items, additional items would increase the current study's predictive validity. Alternatively, future studies may choose an alternative scale. One may choose to implement norm-referenced measures instead of criterion-referenced measures to improve the ability of the study to make finer distinctions between respondents. Another option would be to choose descriptors that are least apt to elicit socially acceptable responses instead of true responses.

Subsequent non-parametric statistical analyses may provide additional information without the constraints of assuming the item responses are measured at the interval-ratio level of measurement. Such analyses may also be used to adapt the proposed model or test additional relationships.

In summary, there was insufficient statistical evidence to support the claim that volunteerism partially mediates the effects of the Big Five personality traits on life satisfaction. That may be the consequence of data limitations, given the skewed distributions of most of the manifest variables used in the study. Future research should aim to overcome those limitations and better evaluate the role that volunteerism plays in relation to the effects of the Big Five personality traits on life satisfaction.

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Table 1

Response Rates and Non-response Patterns

	Total Responses	Refusal	Don't Know	Item Response Not Solicited	Not Interviewed that Round	Response Rate of All Study Participant	Response Rate of Participants Interviewed
Current Life Satisfaction (LS)	1829	1	1	5587	1566	20.36%	99.89%
Volunteer Frequency (VOL)	7244	43	131	0	1566	80.63%	97.65%
Anxious, Easily Upset (ANX)	7457	17	16	0	1494	83.00%	99.56%
Calm, Emotionally Stable (CAL)	7427	23	40	0	1494	82.67%	99.16%
Extraverted, Enthusiastic (EXT)	7363	21	106	0	1494	81.96%	98.30%
Reserved, Quiet (RES)	7445	17	28	0	1494	82.87%	99.40%
Open to New Experiences, Complex (OPE)	7410	28	52	0	1494	82.48%	98.93%
Conventional, Uncreative (CON)	7404	19	67	0	1494	82.41%	98.85%
Sympathetic, Warm (SYM)	7395	28	67	0	1494	82.31%	98.73%
Critical, Quarrelsome (CRI)	7195	20	275	0	1494	80.09%	96.06%
Dependable, Self-disciplined (DEP)	7434	24	32	0	1494	82.75%	99.25%
Disorganized, Careless (DIS)	7454	18	18	0	1494	82.97%	99.52%

Table 2

Descriptive Statistics

	Min	Q1	Median	Q3	Max	Mean	SD	Skewness	Kurtosis
Current Life Satisfaction (LS)	1	4	4	5	5	4.00	0.90	-1.27	1.90
Volunteer Frequency (VOL)	0	0	0	1	12	1.15	2.85	3.14	8.84
Anxious, Easily Upset (ANX)	1	2	3	5	7	3.55	1.83	0.26	-1.02
Calm, Emotionally Stable (CAL)	1	2	2	3	7	2.53	1.39	1.12	1.07
Extraverted, Enthusiastic (EXT)	1	5	5	6	7	5.29	1.38	-0.95	0.83
Reserved, Quiet (RES)	1	3	4	6	7	4.04	1.96	0.09	-1.20
Open to New Experiences, Complex (OPE)	1	5	6	7	7	5.74	1.26	-1.22	1.76
Conventional, Uncreative (CON)	1	4	6	7	7	5.20	1.65	-0.72	-0.35
Sympathetic, Warm (SYM)	1	5	6	7	7	5.52	1.35	-1.12	1.29
Critical, Quarrelsome (CRI)	1	3	4	6	7	4.41	1.66	-0.04	-0.92
Dependable, Self-disciplined (DEP)	1	6	6	7	7	6.11	1.07	-1.83	4.66
Disorganized, Careless (DIS)	1	4	6	7	7	5.27	1.70	-0.76	-0.44

Table 3
Pearson Product-moment Correlation Coefficients after Listwise Deletion of Data

	LS	ANX	CAL	EXT	RES	OPE	CON	SYM	CRI	DEP	DIS	VOL	GEN	BD
Current Life Satisfaction (LS)	1.00	-0.18	-0.14	0.14	0.07	-0.01	0.02	0.05	0.03	0.08	0.08	0.04	0.01	0.01
Anxious, Easily Upset (ANX)	-0.18	1.00	0.36	-0.15	-0.11	-0.09	-0.12	-0.04	-0.29	-0.09	-0.18	-0.05	0.11	0.00
Calm, Emotionally Stable (CAL)	-0.14	0.36	1.00	-0.23	0.09	-0.20	-0.06	-0.18	-0.12	-0.29	-0.17	-0.02	0.10	-0.01
Extraverted, Enthusiastic (EXT)	0.14	-0.15	-0.23	1.00	0.28	0.24	0.15	0.23	-0.02	0.22	0.11	0.05	0.04	0.00
Reserved, Quiet (RES)	0.07	-0.11	0.09	0.28	1.00	0.06	0.12	-0.02	0.03	-0.04	0.03	0.03	0.10	-0.01
Open to New Experiences, Complex (OPE)	-0.01	-0.09	-0.20	0.24	0.06	1.00	0.13	0.20	-0.01	0.19	0.03	0.04	-0.01	0.01
Conventional, Uncreative (CON)	0.02	-0.12	-0.06	0.15	0.12	0.13	1.00	0.10	0.10	0.08	0.13	0.03	-0.01	-0.02
Sympathetic, Warm (SYM)	0.05	-0.04	-0.18	0.23	-0.02	0.20	0.10	1.00	0.08	0.16	0.04	0.05	0.25	-0.04
Critical, Quarrelsome (CRI)	0.03	-0.29	-0.12	-0.02	0.03	-0.01	0.10	0.08	1.00	0.00	0.12	0.02	0.08	-0.02
Dependable, Self-disciplined (DEP)	0.08	-0.09	-0.29	0.22	-0.04	0.19	0.08	0.16	0.00	1.00	0.28	0.01	0.04	-0.03
Disorganized, Careless (DIS)	0.08	-0.18	-0.17	0.11	0.03	0.03	0.13	0.04	0.12	0.28	1.00	0.03	0.05	0.02
Volunteer Frequency (VOL)	0.04	-0.05	-0.02	0.05	0.03	0.04	0.03	0.05	0.02	0.01	0.03	1.00	0.03	-0.01
Gender (GEN)	0.01	0.11	0.10	0.04	0.10	-0.01	-0.01	0.25	0.08	0.04	0.05	0.03	1.00	-0.01
Birthday (BD)	0.02	0.00	0.02	0.01	0.01	0.02	0.02	-0.03	0.02	-0.02	-0.02	-0.02	-0.01	1.00

Table 4

Spearman's Rank Correlation Coefficients after Listwise Deletion of Data

	LS	ANX	CAL	EXT	RES	OPE	CON	SYM	CRI	DEP	DIS	VOL	GEN	BD
Current Life Satisfaction (LS)	1.00	-0.19	0.14	0.17	-0.10	0.00	-0.02	0.05	-0.05	0.09	-0.08	0.08	0.02	0.01
Anxious, Easily Upset (ANX)	-0.19	1.00	-0.37	-0.17	0.11	-0.08	0.13	-0.03	0.30	-0.08	0.18	-0.07	0.11	0.00
Calm, Emotionally Stable (CAL)	0.14	-0.37	1.00	0.24	0.10	0.20	-0.10	0.20	-0.13	0.30	-0.19	0.04	-0.11	-0.01
Extraverted, Enthusiastic (EXT)	0.17	-0.17	0.24	1.00	-0.28	0.26	-0.20	0.25	-0.01	0.23	-0.13	0.09	0.05	0.00
Reserved, Quiet (RES)	-0.10	0.11	0.10	-0.28	1.00	-0.06	0.12	0.03	0.03	0.05	0.03	-0.06	-0.10	-0.01
Open to New Experiences, Complex (OPE)	0.00	-0.08	0.20	0.26	-0.06	1.00	-0.18	0.22	0.01	0.15	-0.04	0.05	-0.01	0.01
Conventional, Uncreative (CON)	-0.02	0.13	-0.10	-0.20	0.12	-0.18	1.00	-0.14	0.11	-0.12	0.17	-0.04	0.01	-0.02
Sympathetic, Warm (SYM)	0.05	-0.03	0.20	0.25	0.03	0.22	-0.14	1.00	-0.10	0.17	-0.07	0.07	0.27	-0.04
Critical, Quarrelsome (CRI)	-0.05	0.30	-0.13	-0.01	0.03	0.01	0.11	-0.10	1.00	0.00	0.12	-0.04	-0.07	-0.02
Dependable, Self-disciplined (DEP)	0.09	-0.08	0.30	0.23	0.05	0.15	-0.12	0.17	0.00	1.00	-0.33	0.02	0.04	-0.03
Disorganized, Careless (DIS)	-0.08	0.18	-0.19	-0.13	0.03	-0.04	0.17	-0.07	0.12	-0.33	1.00	-0.03	-0.07	0.02
Volunteer Frequency (VOL)	0.08	-0.07	0.04	0.09	-0.06	0.05	-0.04	0.07	-0.04	0.02	-0.03	1.00	0.04	-0.01
Gender (GEN)	0.02	0.11	-0.11	0.05	-0.10	-0.01	0.01	0.27	-0.07	0.04	-0.07	0.04	1.00	-0.01
Birthday (BD)	0.01	0.00	-0.01	0.00	-0.01	0.01	-0.02	-0.04	-0.02	-0.03	0.02	-0.01	-0.01	1.00

Table 5

Pearson Product-moment Correlation Coefficients after Multiple Imputation of Data

	LS	ANX	CAL	EXT	RES	OPE	CON	SYM	CRI	DEP	DIS	VOL	GEN	BD
Current Life Satisfaction (LS)	1.00	-0.18	-0.16	0.16	0.10	-0.03	0.00	0.07	0.05	0.12	0.10	0.02	0.06	0.00
Anxious, Easily Upset (ANX)	-0.18	1.00	0.37	-0.15	-0.11	-0.10	-0.13	-0.04	-0.29	-0.09	-0.18	-0.05	0.11	0.00
Calm, Emotionally Stable (CAL)	-0.16	0.37	1.00	-0.24	0.10	-0.21	-0.06	-0.19	-0.13	-0.29	-0.17	-0.03	0.10	0.01
Extraverted, Enthusiastic (EXT)	0.16	-0.15	-0.24	1.00	0.28	0.25	0.16	0.23	-0.03	0.22	0.11	0.05	0.04	0.01
Reserved, Quiet (RES)	0.10	-0.11	0.10	0.28	1.00	0.06	0.13	-0.03	0.03	-0.05	0.03	0.03	0.11	0.01
Open to New Experiences, Complex (OPE)	-0.03	-0.10	-0.21	0.25	0.06	1.00	0.13	0.20	-0.01	0.20	0.03	0.04	0.00	0.02
Conventional, Uncreative (CON)	0.00	-0.13	-0.06	0.16	0.13	0.13	1.00	0.10	0.10	0.08	0.13	0.03	-0.01	0.01
Sympathetic, Warm (SYM)	0.07	-0.04	-0.19	0.23	-0.03	0.20	0.10	1.00	0.09	0.15	0.03	0.05	0.25	-0.03
Critical, Quarrelsome (CRI)	0.05	-0.29	-0.13	-0.03	0.03	-0.01	0.10	0.09	1.00	0.01	0.12	0.02	0.08	0.01
Dependable, Self-disciplined (DEP)	0.12	-0.09	-0.29	0.22	-0.05	0.20	0.08	0.15	0.01	1.00	0.27	0.01	0.03	-0.01
Disorganized, Careless (DIS)	0.10	-0.18	-0.17	0.11	0.03	0.03	0.13	0.03	0.12	0.27	1.00	0.04	0.05	-0.02
Volunteer Frequency (VOL)	0.02	-0.05	-0.03	0.05	0.03	0.04	0.03	0.05	0.02	0.01	0.04	1.00	0.03	-0.02
Gender (GEN)	0.06	0.11	0.10	0.04	0.11	0.00	-0.01	0.25	0.08	0.03	0.05	0.03	1.00	-0.01
Birthday (BD)	0.00	0.00	0.01	0.01	0.01	0.02	0.01	-0.03	0.01	-0.01	-0.02	-0.02	-0.01	1.00

Table 6

Spearman's Rank Correlation Coefficients after Multiple Imputation of Data

	LS	ANX	CAL	EXT	RES	OPE	CON	SYM	CRI	DEP	DIS	VOL	GEN	BD
Current Life Satisfaction (LS)	1.00	-0.17	-0.13	0.16	0.10	-0.05	0.00	0.06	0.05	0.09	0.09	0.07	0.06	0.00
Anxious, Easily Upset (ANX)	-0.17	1.00	0.37	-0.16	-0.11	-0.08	-0.14	-0.03	-0.30	-0.08	-0.18	-0.08	0.11	0.00
Calm, Emotionally Stable (CAL)	-0.13	0.37	1.00	-0.24	0.10	-0.19	-0.09	-0.20	-0.13	-0.30	-0.19	-0.04	0.11	0.01
Extraverted, Enthusiastic (EXT)	0.16	-0.16	-0.24	1.00	0.28	0.26	0.19	0.25	-0.01	0.23	0.13	0.09	0.04	0.00
Reserved, Quiet (RES)	0.10	-0.11	0.10	0.28	1.00	0.06	0.13	-0.03	0.03	-0.06	0.03	0.05	0.11	0.01
Open to New Experiences, Complex (OPE)	-0.05	-0.08	-0.19	0.26	0.06	1.00	0.17	0.21	-0.01	0.16	0.04	0.06	0.00	0.01
Conventional, Uncreative (CON)	0.00	-0.14	-0.09	0.19	0.13	0.17	1.00	0.14	0.11	0.11	0.16	0.04	-0.01	0.01
Sympathetic, Warm (SYM)	0.06	-0.03	-0.20	0.25	-0.03	0.21	0.14	1.00	0.10	0.16	0.06	0.07	0.27	-0.03
Critical, Quarrelsome (CRI)	0.05	-0.30	-0.13	-0.01	0.03	-0.01	0.11	0.10	1.00	0.01	0.13	0.04	0.08	0.01
Dependable, Self-disciplined (DEP)	0.09	-0.08	-0.30	0.23	-0.06	0.16	0.11	0.16	0.01	1.00	0.31	0.02	0.04	-0.01
Disorganized, Careless (DIS)	0.09	-0.18	-0.19	0.13	0.03	0.04	0.16	0.06	0.13	0.31	1.00	0.04	0.06	-0.02
Volunteer Frequency (VOL)	0.07	-0.08	-0.04	0.09	0.05	0.06	0.04	0.07	0.04	0.02	0.04	1.00	0.04	-0.02
Gender (GEN)	0.06	0.11	0.11	0.04	0.11	0.00	-0.01	0.27	0.08	0.04	0.06	0.04	1.00	-0.01
Birthday (BD)	0.00	0.00	0.01	0.00	0.01	0.01	0.01	-0.03	0.01	-0.01	-0.02	-0.02	-0.01	1.00

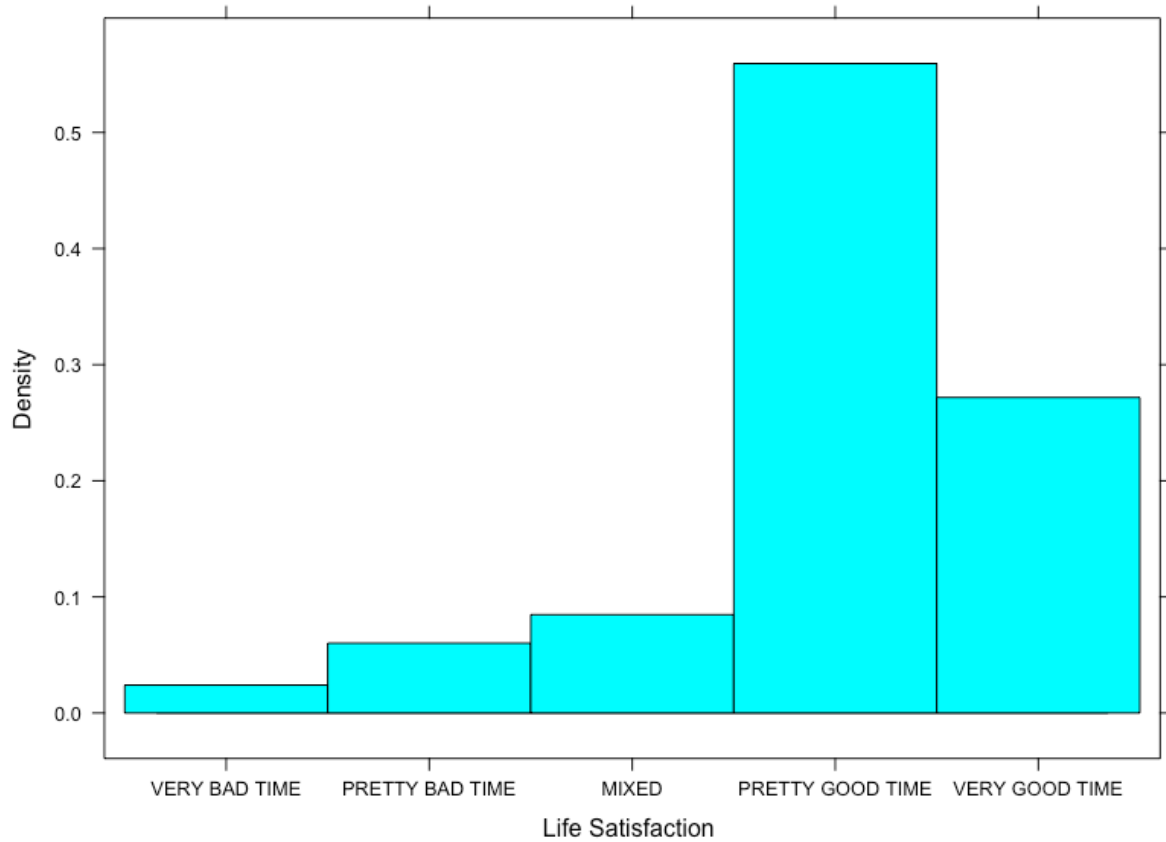


Figure 1. Histogram of responses to the life satisfaction item, which indicates participants' overall current life ratings.

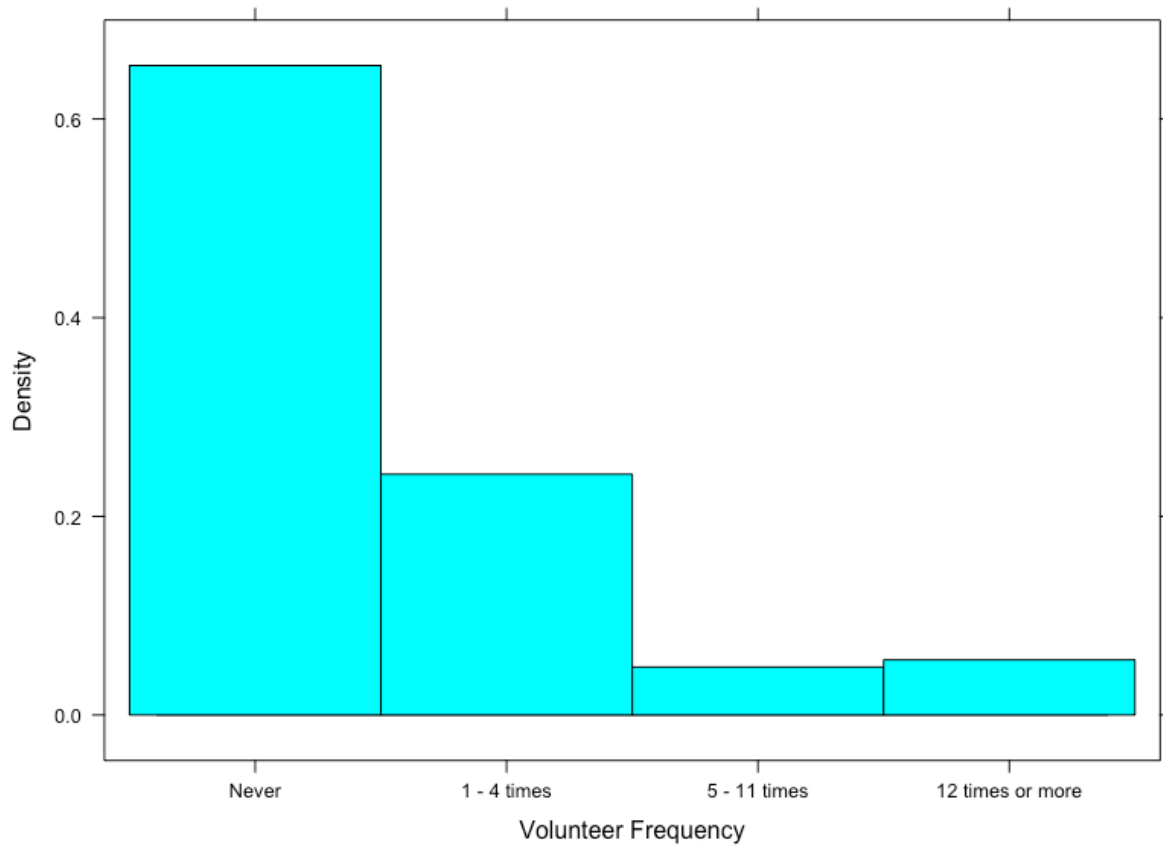


Figure 2. Histogram of responses to the volunteer frequency item, which indicates the number of times participants did unpaid volunteer work in the past year.

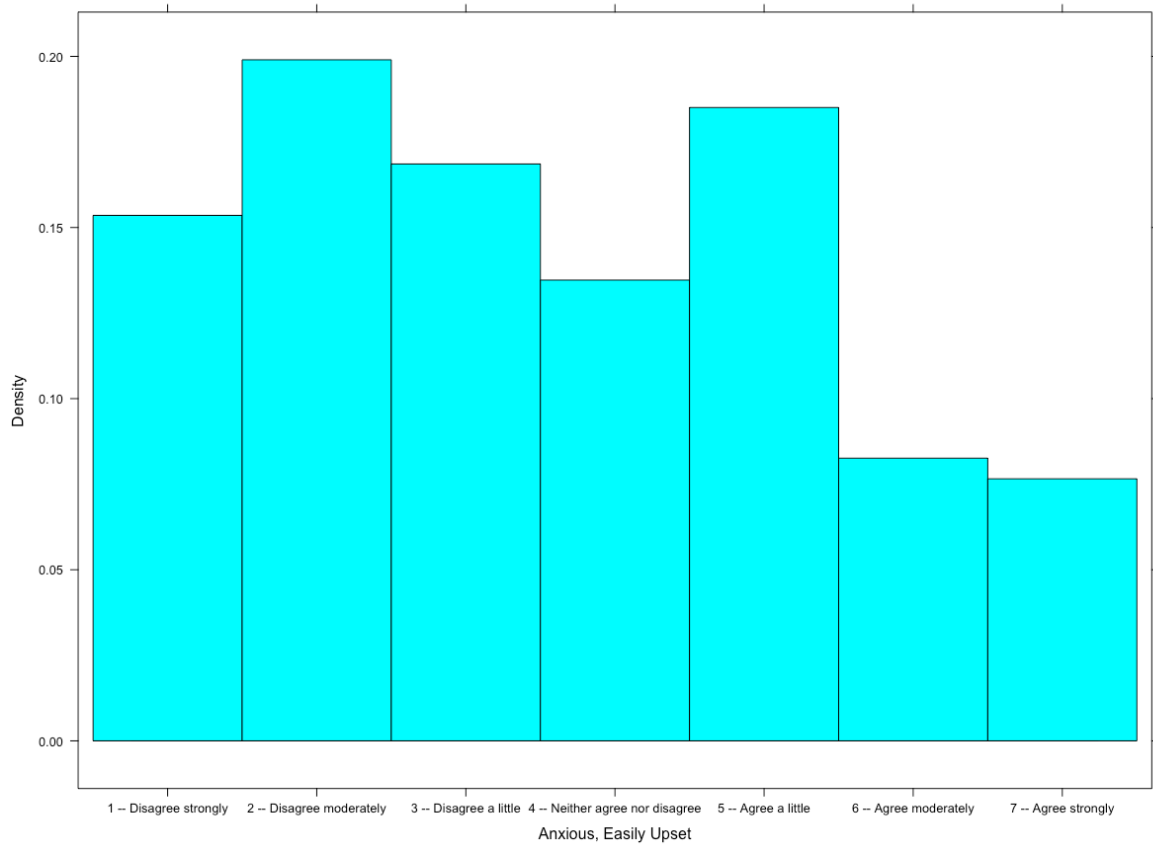


Figure 3. Histogram of responses to the neuroticism item indicating how much participants agree or disagree with the statement that they are anxious and easily upset.

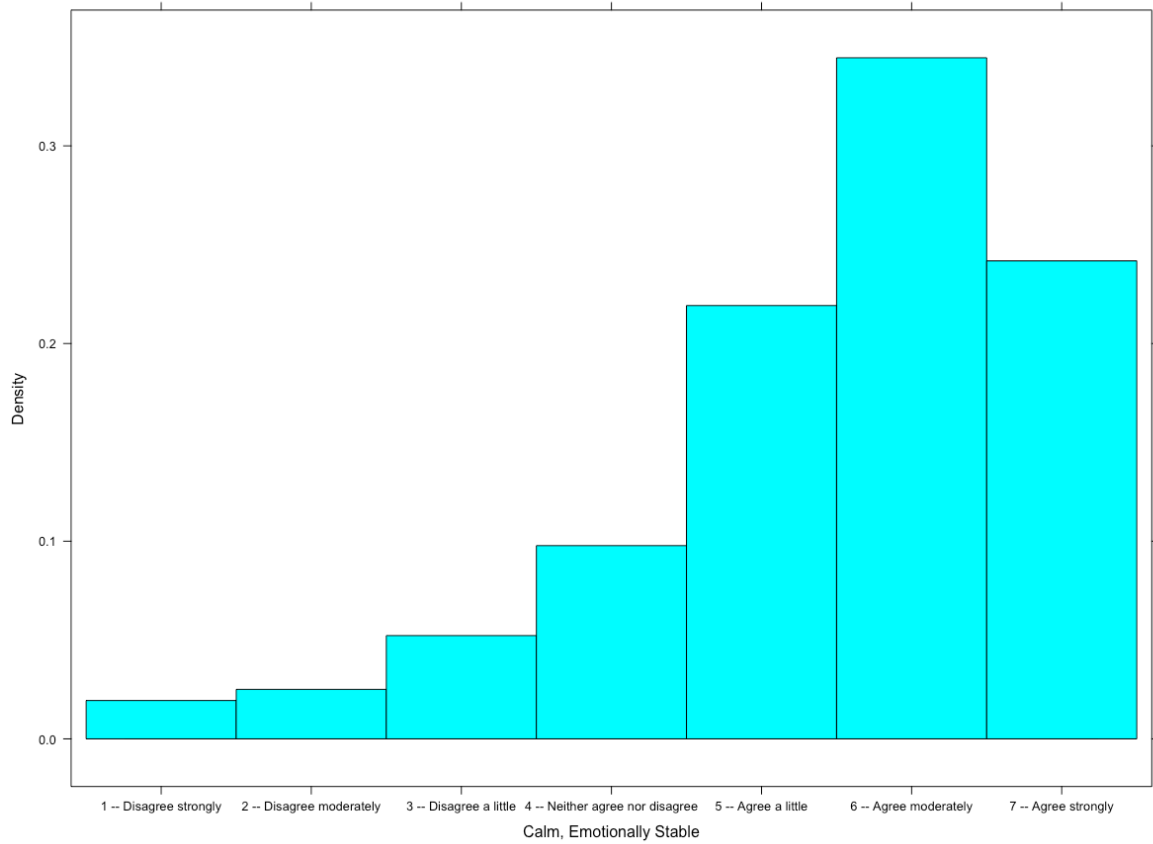


Figure 4. Histogram of responses to the reverse-scored neuroticism item indicating how much participants agree or disagree with the statement that they are calm and emotionally stable.

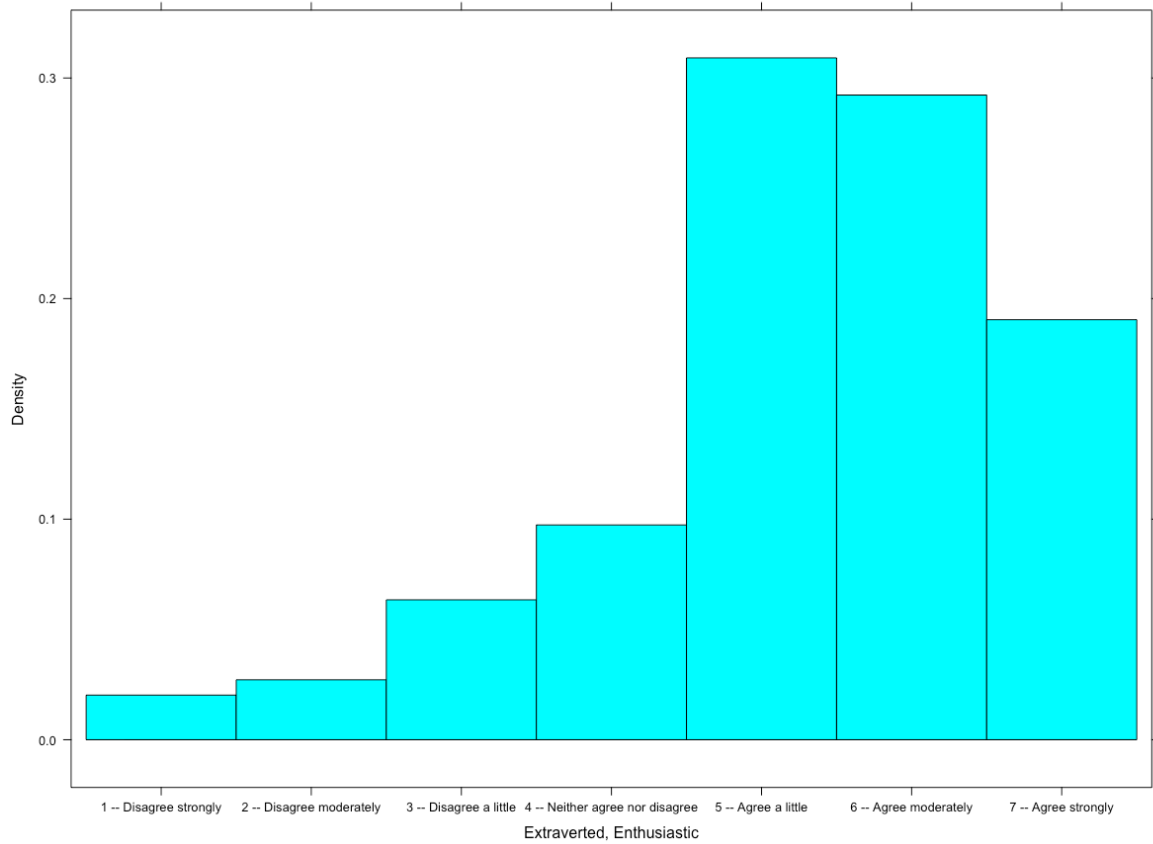


Figure 5. Histogram of responses to the extraversion item indicating how much participants agree or disagree with the statement that they are extraverted and enthusiastic.

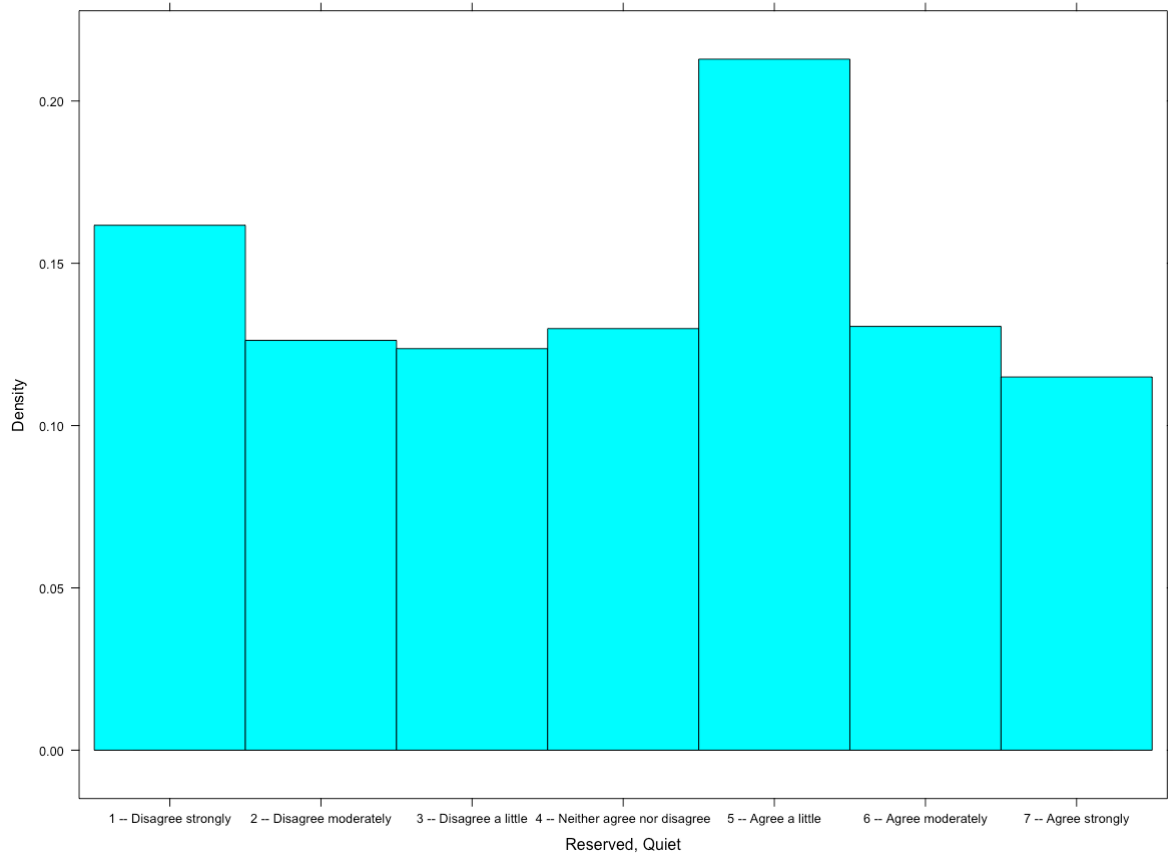


Figure 6. Histogram of responses to the reverse-scored extraversion item indicating how much participants agree or disagree with the statement that they are reserved and quiet.

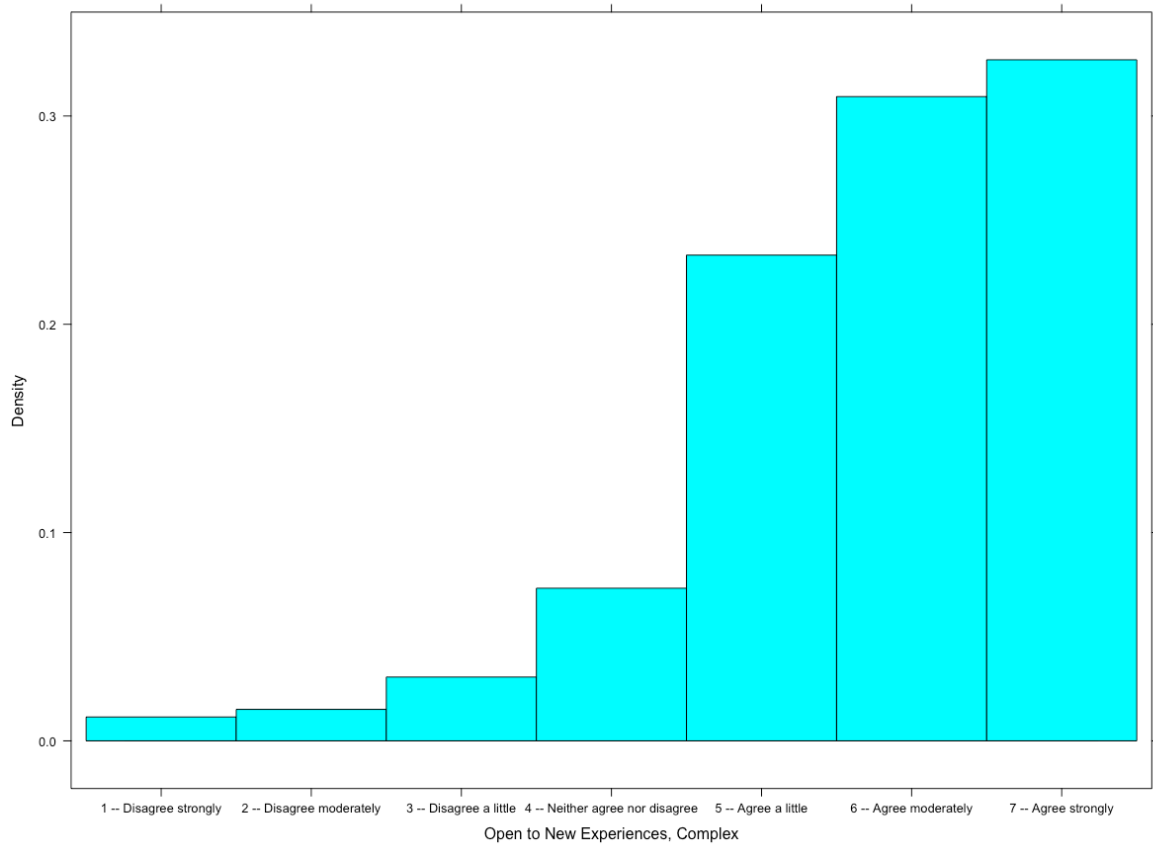


Figure 7. Histogram of responses to the openness item indicating how much participants agree or disagree with the statement that they are open to new experiences and complex.

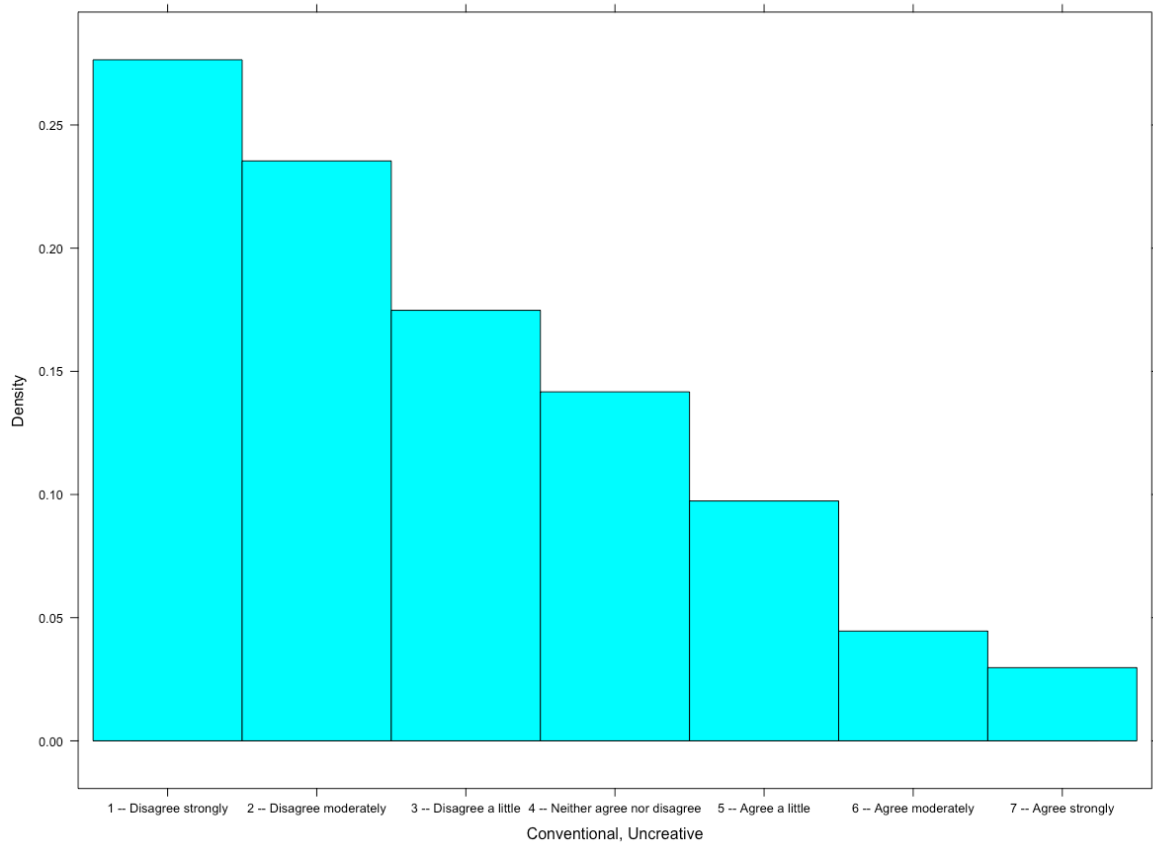


Figure 8. Histogram of responses to the reverse-scored openness item indicating how much participants agree or disagree with the statement that they are conventional and uncreative.

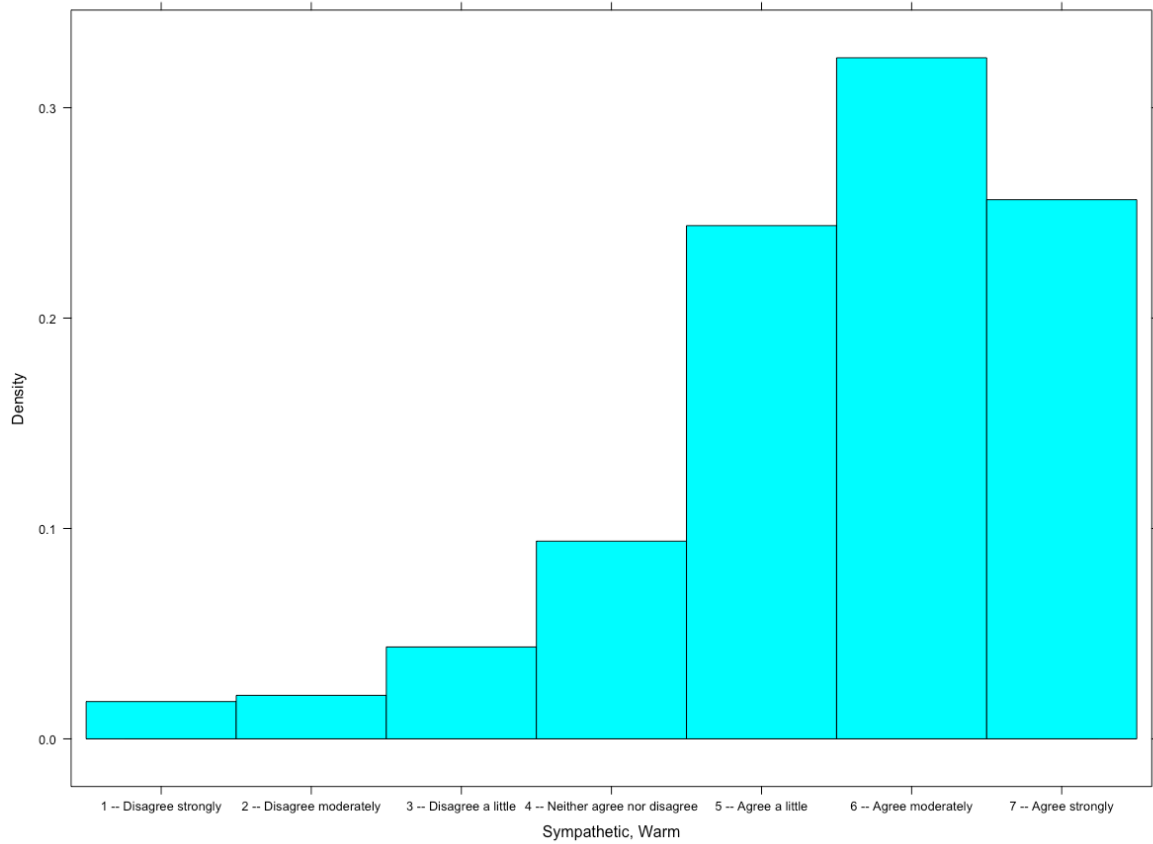


Figure 9. Histogram of responses to the agreeableness item indicating how much participants agree or disagree with the statement that they are sympathetic and warm.

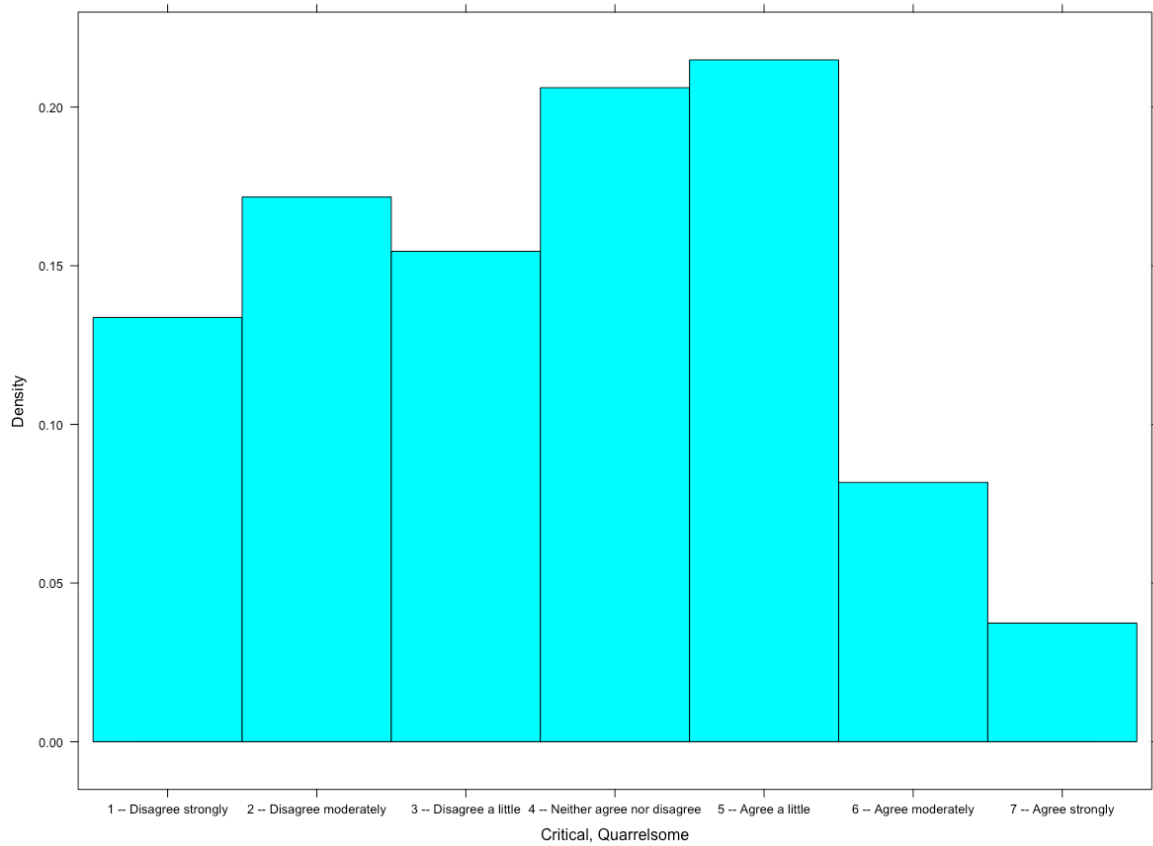


Figure 10. Histogram of responses to the reverse-scored agreeableness item indicating how much participants agree or disagree with the statement that they are critical and quarrelsome.

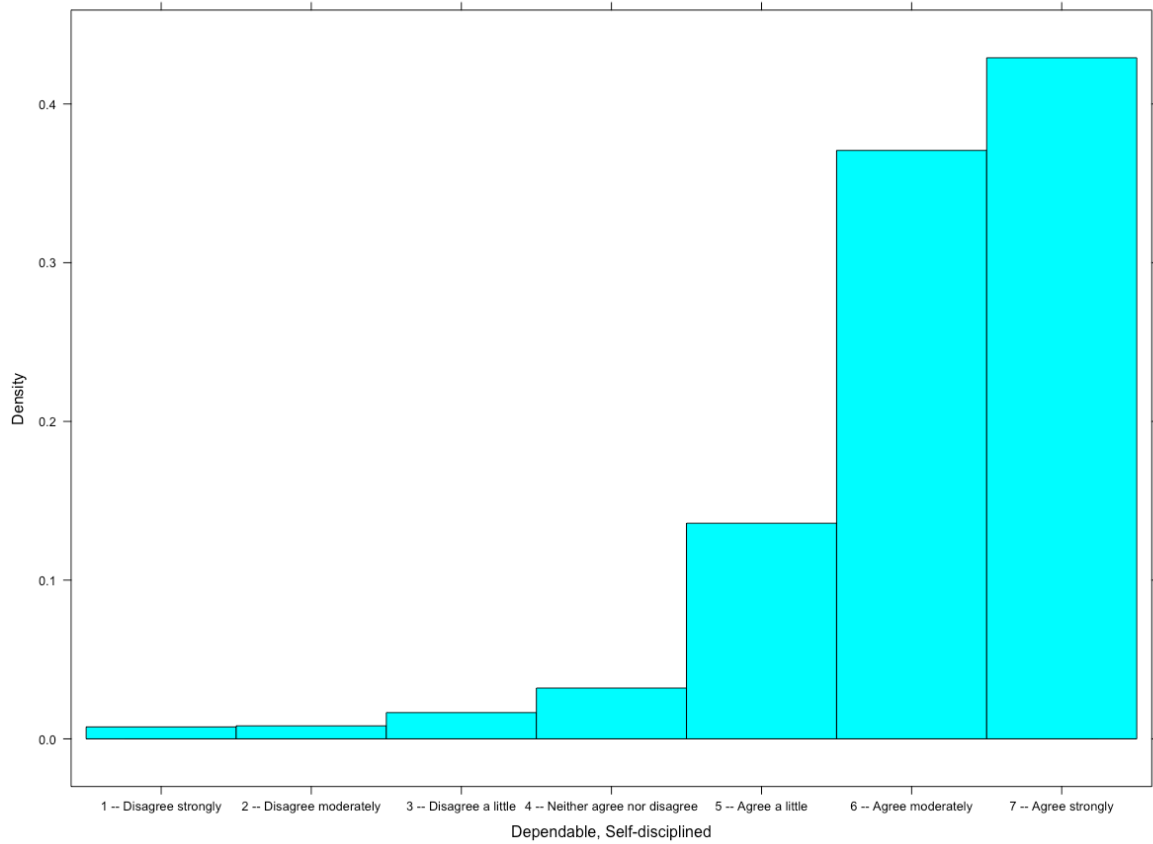


Figure 11. Histogram of responses to the conscientiousness item indicating how much participants agree or disagree with the statement that they are dependable and self-disciplined.

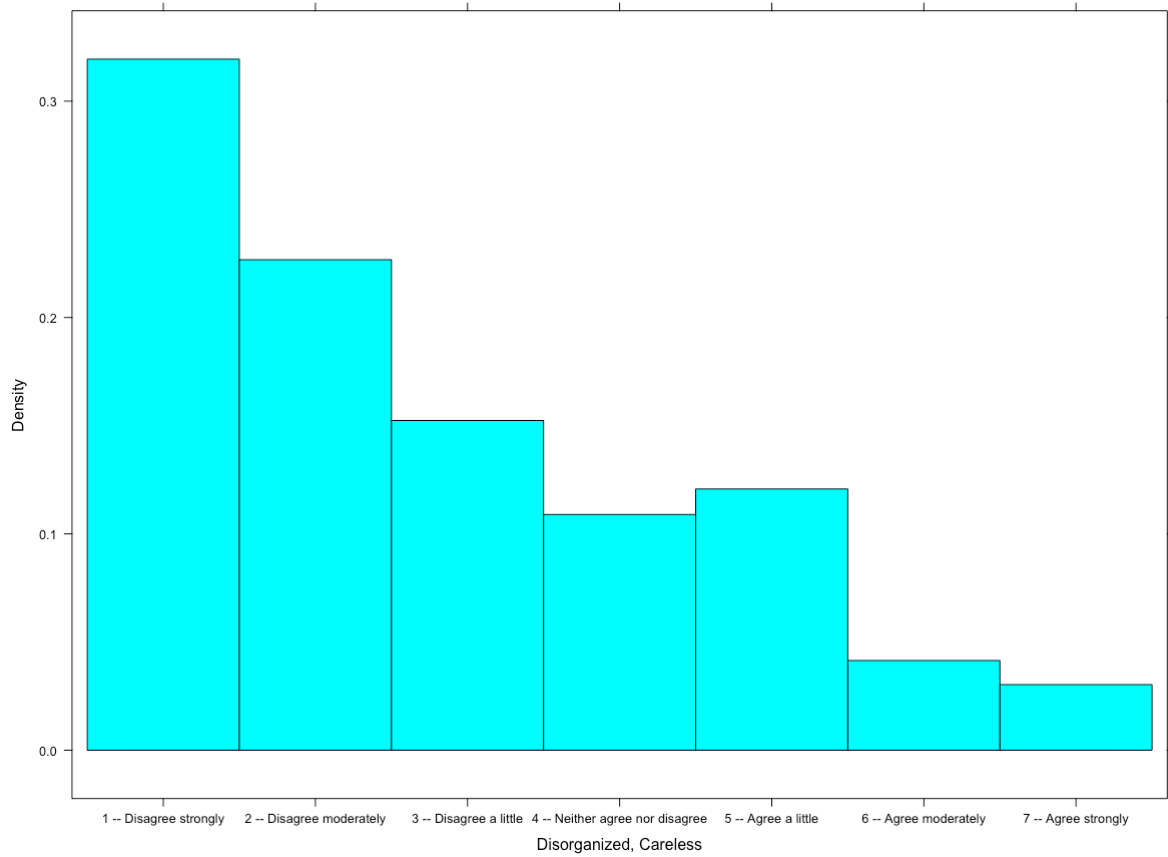


Figure 12. Histogram of responses to the reverse-scored conscientiousness item indicating how much participants agree or disagree with the statement that they are disorganized and careless.

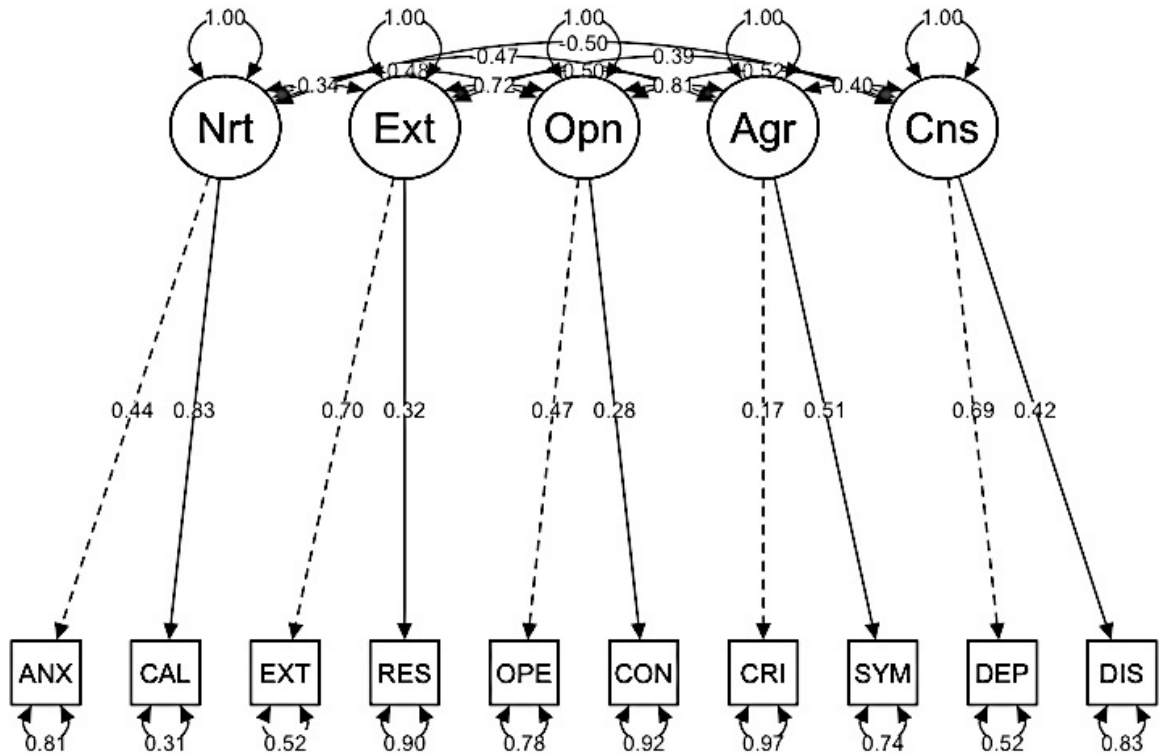


Figure 13. Confirmatory factor analysis of the model of 5 latent personality traits, neuroticism (Nrt), extraversion (Ext), openness (Opn), agreeableness (Agr), and conscientiousness (Cns) with listwise deletion applied. Neuroticism (Nrt) is measured by the items pertaining to being anxious and easily upset (ANX) and being calm and emotionally stable (CAL), the latter of which is reverse-scored. Extraversion (Ext) is measured by the items pertaining to being extraverted and enthusiastic (EXT) and being reserved and quiet (RES), the latter of which is reverse-scored. Openness (Opn) is measured by the items pertaining to being open and complex (OPE) and being conventional and uncreative (CON), the latter of which is reverse-scored. Agreeableness (Agr) is measured by the items pertaining to being sympathetic and warm (SYM) and being critical and quarrelsome (CRI), the latter of which is reverse-scored. Conscientiousness (Cns) is measured by the items pertaining to being dependable and self-disciplined (DEP) and being disorganized and careless (DIS), the latter of which is reverse-scored. To adjust for the Heywood case, the variance of the item pertaining to being extraverted and enthusiastic (EXT) was fixed to 1.

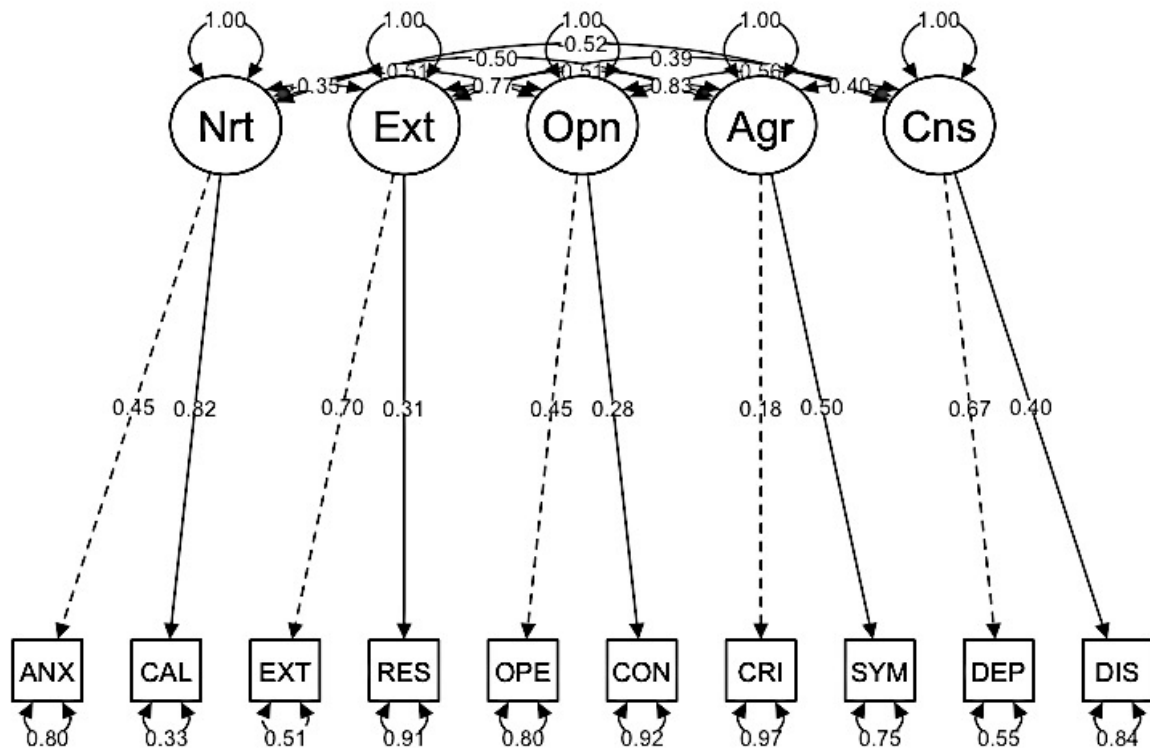


Figure 14. Confirmatory factor analysis of the model of 5 latent personality traits, neuroticism (Nrt), extraversion (Ext), openness (Opn), agreeableness (Agr), and conscientiousness (Cns) with multiple imputation by chained equations applied. Neuroticism (Nrt) is measured by the items pertaining to being anxious and easily upset (ANX) and being calm and emotionally stable (CAL), the latter of which is reverse-scored. Extraversion (Ext) is measured by the items pertaining to being extraverted and enthusiastic (EXT) and being reserved and quiet (RES), the latter of which is reverse-scored. Openness (Opn) is measured by the items pertaining to being open and complex (OPE) and being conventional and uncreative (CON), the latter of which is reverse-scored. Agreeableness (Agr) is measured by the items pertaining to being sympathetic and warm (SYM) and being critical and quarrelsome (CRI), the latter of which is reverse-scored. Conscientiousness (Cns) is measured by the items pertaining to being dependable and self-disciplined (DEP) and being disorganized and careless (DIS), the latter of which is reverse-scored. To adjust for the Heywood case, the variance of the item pertaining to being extraverted and enthusiastic (EXT) was fixed to 1.

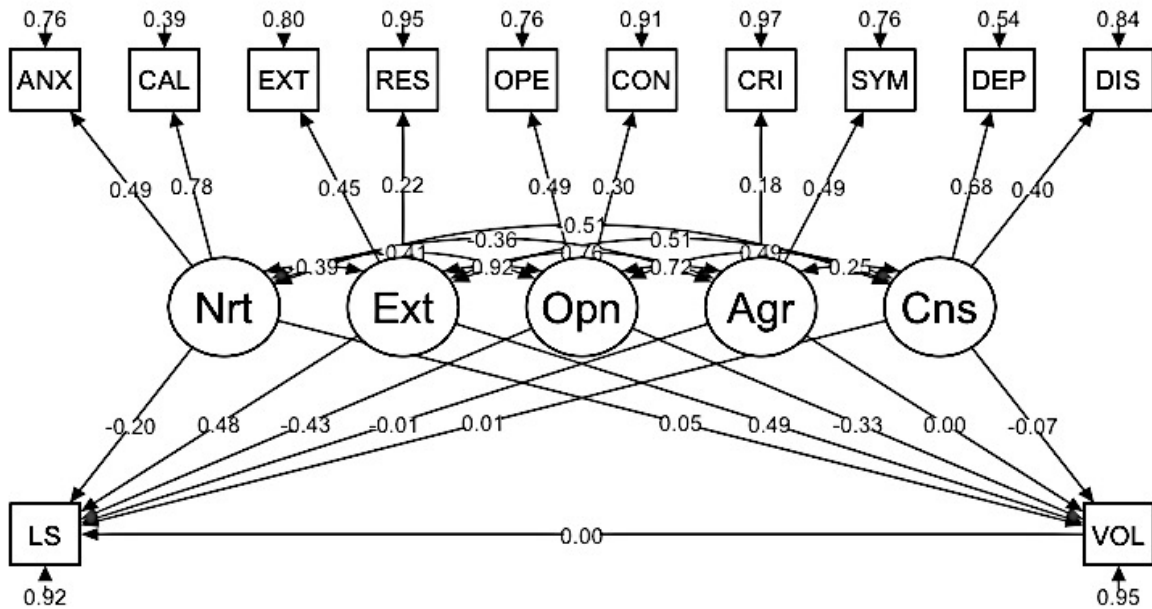


Figure 15. Structural equation model of life satisfaction (LS) regressed on the 5 latent personality traits, neuroticism (Nrt), extraversion (Ext), openness (Opn), agreeableness (Agr), and conscientiousness (Cns), mediated by volunteer frequency (VOL), after applying listwise deletion. Neuroticism (Nrt) is measured by the items pertaining to being anxious and easily upset (ANX) and being calm and emotionally stable (CAL), the latter of which is reverse-scored. Extraversion (Ext) is measured by the items pertaining to being extraverted and enthusiastic (EXT) and being reserved and quiet (RES), the latter of which is reverse-scored. Openness (Opn) is measured by the items pertaining to being open and complex (OPE) and being conventional and uncreative (CON), the latter of which is reverse-scored. Agreeableness (Agr) is measured by the items pertaining to being sympathetic and warm (SYM) and being critical and quarrelsome (CRI), the latter of which is reverse-scored. Conscientiousness (Cns) is measured by the items pertaining to being dependable and self-disciplined (DEP) and being disorganized and careless (DIS), the latter of which is reverse-scored. To adjust for the Heywood case, the variance of the item pertaining to being extraverted and enthusiastic (EXT) was fixed to 1.

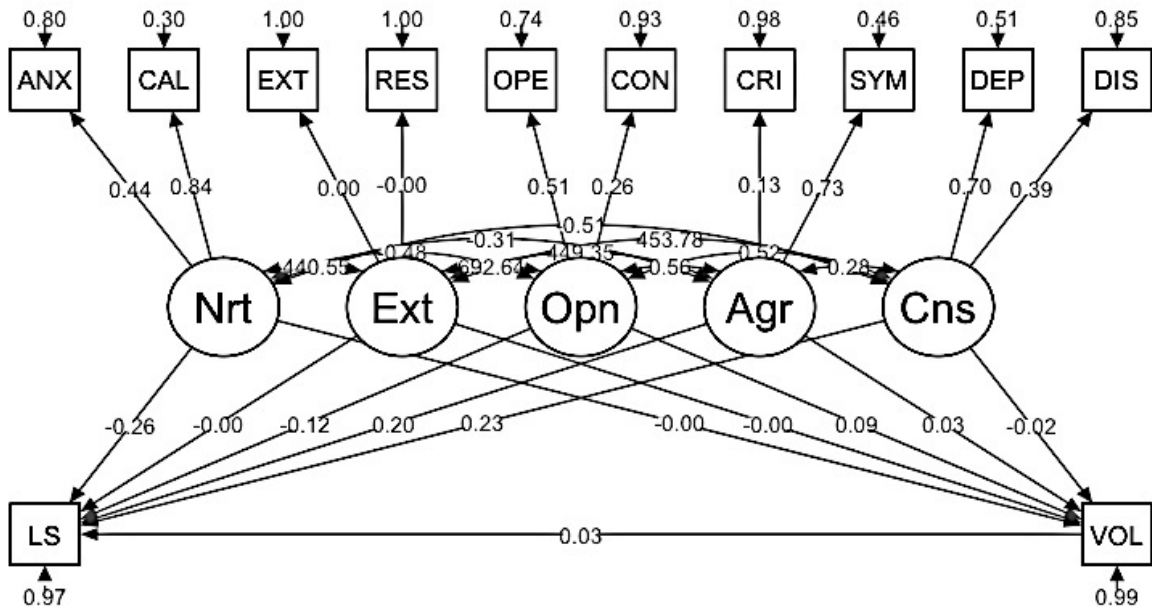


Figure 16. Structural equation model of life satisfaction (LS) regressed on the 5 latent personality traits, neuroticism (Nrt), extraversion (Ext), openness (Opn), agreeableness (Agr), and conscientiousness (Cns), mediated by volunteer frequency (VOL), after applying multiple imputation by chained equations. Neuroticism (Nrt) is measured by the items pertaining to being anxious and easily upset (ANX) and being calm and emotionally stable (CAL), the latter of which is reverse-scored. Extraversion (Ext) is measured by the items pertaining to being extraverted and enthusiastic (EXT) and being reserved and quiet (RES), the latter of which is reverse-scored. Openness (Opn) is measured by the items pertaining to being open and complex (OPE) and being conventional and uncreative (CON), the latter of which is reverse-scored. Agreeableness (Agr) is measured by the items pertaining to being sympathetic and warm (SYM) and being critical and quarrelsome (CRI), the latter of which is reverse-scored. Conscientiousness (Cns) is measured by the items pertaining to being dependable and self-disciplined (DEP) and being disorganized and careless (DIS), the latter of which is reverse-scored. To adjust for the Heywood case, the variance of the item pertaining to being extraverted and enthusiastic (EXT) was fixed to 1.