The national survey of Midlife Development in the U.S. (MIDUS) was conducted by a multidisciplinary team of scholars from fields of psychology, sociology, epidemiology, demography, anthropology, medicine, and health care policy. The main aim of the study was to investigate how psychological, behavioral, and social factors affect well-being and health.

**Introduction and research questions**

I am particularly interested in how different personality traits and the interaction effects of these traits and some other aspects of life will affect important variables such as life satisfaction, well-being, and health.

Previous studies have shown that job satisfaction is positively related to life satisfaction (Loscocco & Roschelle, 1991), and perceived job discrimination and inequality are two important factors of job satisfaction (Ensher et al., 2001). However, I wonder if certain personality traits are going to play a role in the relationships between perceived job discrimination/inequality and life satisfaction. The three personality traits I am curious about are self-esteem, conscientiousness, and neuroticism. All these three variables have been proved by previous studies to be related with either life satisfaction or happiness and health (Steel, Schmidt, & Shultz, 2008; Leary, Tambor, Terdal, & Downs, 1995; Schimmack, Oishi, Furr, & Funder, 2004 ).

Therefore, my research questions are:

1. *How do chronic job discrimination, perceived inequality at work, self-esteem, conscientiousness, and neuroticism affect life satisfaction?*
2. *Are there any interaction effects between job-related variables and personality traits?*

Basically, we are interested to investigate whether at a given level of chronic job discrimination or perceived inequality at work, people with different levels of neuroticism, conscientiousness, and self-esteem have different levels of life satisfaction.

**Method**

1. To refer to variables more conveniently in the report, I gave variables simpler labels:

chronic job discrimination = ‘chro’;

perceived inequality at work = ‘per’;

conscientiousness = ‘con’;

neuroticism = ‘neu’;

self-esteem = ‘se’;

life satisfaction = ‘sat’.

1. All variables are continuous, according to the data codebook, so I obtained a summary of all 6 variables including the sample sizes, means, standard deviations, minimum values, and maximum values. The proportion of missing value is approximately 1%, therefore, respondents whose responses have missing values were excluded from the analysis. N= 2659.
2. After 2, I checked for normality of all variables by fitting a normal curve to the histograms, and then I obtained the correlation matrix.
3. The value 0 is of little meaning to the personality and job-related variables (options all start from 1), and for easier and more meaningful interpretations, I used the mean-centered predictor instead of the original ones.
4. After 4, I used “PROC REG” to fit the model of interest, where the response variable is ‘sat’. In addition to all 5 predictors (chro, per, se, neu, and con), interaction terms are also included of all possible pairs containing one job-related variable and one personality variable. After getting the results, I checked the Q-Q plot of residuals and the histogram to see if normality assumption is all right. Also, I tried to detect outliers based on their leverage values, studentized residuals, and Cook’s D. VIFs were also checked to see if we need to worry about multicollinearity.
5. After removing the outliers, I used the ‘new’ data to run ‘PROC REG’ again to refit the same model, along with a stepwise selection.

**Results and findings**

1. According to the histograms, none of the six variables were normally distributed, and therefore Spearman rank correlation was obtained instead Pearson correlation. Consistent with previous studies, ‘chro’, ‘per’, and ‘neu’ were negatively correlated with life satisfaction, and ‘se’ and ‘con’ were positively correlated with life satisfaction. All correlations are significant at 0.05 level.
2. After fitting the regression model for the first time, according to the Q-Q plot and histogram, distribution of residuals were skewed. VIFs look fine, and are all larger than 1 but smaller than 2, indicating no problem with multicollinearity. There are outliers with absolute values of studentized residuals larger than 2. The adjusted R square is 0.35.
3. After removing the outliers, the Q-Q plot and histogram obtained from refitting the model showed that normality assumption looks ok, and is not a problem anymore. The main effects of all predictors are significant (p < .0001). The interaction effects between mean-centered ‘chro’ and mean-centered ‘con’, and between mean-centered ‘per’ and mean-centered ‘se’ are also significant (p <.01). The adjusted R square is 0.41.
4. The final model I come up with is:

Sat = 7.83-0.04 \*(chro-mean)-0.49\*(per-mean)-0.15\*(neu-mean) +0.26\*(con-mean) +0.03\*(se-mean) +0.01\*(se-mean)\*(per-mean)-0.04\*(con-mean)\*(chro-mean)

1. Interpretation:
2. Given everything at its average level, life satisfaction is 7.83.
3. Main effects:
4. Given all the other predictors unchanged, and conscientiousness at its mean level, higher chronic job discrimination is associated with lower life satisfaction.
5. Given all the other predictors unchanged, and self-esteem at its mean level, higher perceived inequality at work is associated with lower life satisfaction.
6. Given all the other predictors unchanged, and chronic job discrimination at it mean level, higher conscientiousness is associated with life satisfaction.
7. Given all the other predictors unchanged, and perceived inequality at work at its mean level, higher self-esteem is associated with higher life satisfaction.
8. Given all the other predictors unchanged, higher neuroticism is associated with lower life satisfaction.
9. Given all the other predictors unchanged, when chronic job discrimination is 6.5 units or more higher than the average level, life satisfaction decreases as conscientiousness increases.
10. Given all the other predictors unchanged, when perceived inequality at work is no more than 3 units below the mean level, life satisfaction increases as self-esteem increases perceived inequality at work is no more than 3 units below the mean level.

**Discussion**

1. The main effects of all 5 mean-centered variables are significant, which is consistent with previous studies, indicating that life-satisfaction is a broad concept including a lot of aspects, such as job discrimination and inequality and personality.
2. The seemingly counterintuitive result about the interaction effects between conscientiousness and chronic job discrimination might be partially explained by the Boyce, Wood, and Brown (2010) study that those high in conscientiousness showed the largest drop in life satisfaction by the third year of unemployment, which means when faced with a negative situation, people who have a high level of conscientiousness, compared with those who are low in the trait, actually tend to suffer from a larger decrease in life satisfaction, because their personality makes it harder for them to accept and get used to difficult situations like losing jobs.
3. The interaction effects between perceived inequality at work and self-esteem is pretty intuitive, and according to Leary et al. (1995), self-esteem is widely considered to produce significant effect by buffering the person against stress and negative emotions. Therefore, it’s easy to understand why with equal level of perceived inequality at work, people who have a higher level of self-esteem will be more satisfied with life.