

Appendix

CREATION OF SOCIO-ECONOMIC POSITION MEASURE

The socio-economic position (SEP) of the respondents was created after careful consideration of the variable of the BRFSS codebook. Each variable was studied for its definition and a measure of SEP was created as mentioned in Eq.(1). The definition of all the variables can be found in table I.

The income of the person was a quantitative variable, ranging from 1 to 8 with increasing income of respondents. Making higher-income [1] values associated to higher SEP. The employment status of the respondents, ranging from 1 to 8, was associated with higher SEP. Thus, the quantitative variable of employment status which is showing decreased progression with an increase in value is negatively associated with higher SEP. Individual's highest level of education serves as a determinant factor for socioeconomic conditions [2], [3]. As higher education provides better access to employment and in turn to earn better. Education level being a quantitative variable with a range of 1 to 6, is positively correlated with higher SEP. Housing and accommodation status contribute significantly when it comes to gauging the economic status of a household [4]. Thus, the variable of homeownership with the value of '1' if the respondent owns and '2' if the respondent rents his/her house, is negatively correlated to higher SEP. Also, respondents' ability to pay the rent and affordability of food is a partial indicator of SEP [5]. Making quantitative variables of the scant meal and scant meal, ranging from 1 to 5 based on decreasing affordability, positively co-related with higher SEP.

Finally, the measure of SEP was created from the past evidence from the literature. In the given study, Income, education level, scant meal, scant rent were positively correlated with higher SEP, thus are taken as numerators. And homeownership, employment was negatively correlated with higher SEP, thus are taken as denominators. It is mathematically depicted as follows:

$$SEP = INCOME + \frac{1}{HOME OWNERSHIP} + EDUCATION LEVEL + SCANT MEAL + SCANT RENT + \frac{1}{EMPLOYMENT} \quad (1)$$

TABLE I: Table representing definition of all the variables

Variable	Value
Demography	
Age group	3=(30,34), 4=(35,39), 5=(40,44), 6=(45,49), 7=(50,54), 8=(55,59), 9=(60,64), 10=(65,69), 11=(70,74), 12=(75,79), 13=80+
Gender	1=Male, 2=Female
Ethnicity	1=White, 2=Black, 3=Hispanic, 4=Other race, 5=Multiracial
Lifestyle	
BMI	17.49 to 46.06
Exercise	1=Yes, 0=No
Other covariate	
Diabetes duration	0=(0,4), 1=(5,9), 2=(10,14), 3=(15,19), 4=(20,24), 5=(25,29), 6=(30,34), 7=(35,39), 8=(40,44), 9=(45,49), 10=(50,54), 11=(55,59)
Socio-economic position	
Education level	1=No school, 2=Grade 1 to 8, 3=Grade 9 to 11, 4=Grade 12, 5=College 1 to 3 years, 6=College 4 years or more
Employment status	1=Employed for wages, 2=self-employed, 3=Homemaker, 4=Student, 5=Out of work for < 1 year, 6=Out of work for > 1 year, 7=Retired, 8=Unable to work
Income	1=($<10,000$), 2=(10,000 to 14,999), 3=(15,000 to 19,999), 4=(20,000 to 24,999), 5=(25,000 to 34,999), 6=(35,000 to 49,999), 7=(50,000 to 79,999), 8=($>75,000$)
Not able to pay rent	1=Always, 2=Usually, 3=Sometimes, 4=Rarely, 5=Never
Scant Meal	1=Always, 2=Usually, 3=Sometimes, 4=Rarely, 5=Never
Home ownership	1=Own, 2=Rent
Diabetes depression	
Comorbidity	1=Present, 0=Absent

REFERENCES

- [1] M. C. Daly, G. J. Duncan, P. McDonough, and D. R. Williams, "Optimal indicators of socioeconomic status for health research," *American Journal of Public Health*, vol. 92, no. 7, pp. 1151–1157, Jul. 2002.
- [2] A. Darin-Mattsson, S. Fors, and I. K  reholt, "Different indicators of socioeconomic status and their relative importance as determinants of health in old age," *International Journal for Equity in Health*, vol. 16, no. 1, p. 173, Sep. 2017. [Online]. Available: <https://doi.org/10.1186/s12939-017-0670-3>
- [3] *Education, Social Status, and Health*. Routledge, Sep. 2017. [Online]. Available: <https://www.taylorfrancis.com/books/education-social-status-health-john-mirowsky-catherine-ross/10.4324/9781351328081>
- [4] S. Shafiei, S. Yazdani, M.-P. Jadidfar, and A. H. Zafarmand, "Measurement components of socioeconomic status in health-related studies in Iran," *BMC Research Notes*, vol. 12, Jan. 2019. [Online]. Available: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6357485/>
- [5] N. Murayama, "Effects of Socioeconomic Status on Nutrition in Asia and Future Nutrition Policy Studies," *Journal of Nutritional Science and Vitaminology*, vol. 61 Suppl, pp. S66–68, 2015.