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**Supplemental Material:**

**“More is Better” or “Better Near the Middle”? A U.S.-Based Individual Participant Data Meta-Analysis of Socioeconomic Status and Depressive Symptoms**

**Study Identification and Systematic Search**

***Identifying Studies***

Data for this project were pooled from a collection of 127 individual participant data (IPD) datasets on racial/ethnic disparities in depressive symptoms in the United States (U.S; Causadias et al., 2018). This pool of IPD datasets was designed to test racial/ethnic differences in depressive symptoms, thus, providing a compelling test of moderation by race/ethnicity. Following prior meta-analyses of IPD (Hakulinen et al., 2015; Jokela et al., 2013), the initial pool of IPD datasets were identified from a systematic search of secondary, open-access datasets, rather than conducting a systematic search of eligible studies using bibliographic databases (e.g., PsycINFO) and then attempting to retrieve raw data from study authors. This search was conducted on the Inter-university Consortium for Political and Social Research (ICPSR). The target population of studies was open access, nationally representative datasets, defined in this search as studies that randomly sample from the general population of the U.S.

***Search Strategy***

The initial pool of IPD datasets was identified via a systematic search on ICPSR in August 2018. Two search strings were inputted in the “Find Data” field: String 1 = *depression "United States" -"great depression”*; String 2 = *"depressive symptoms" "United States" -"great depression".* Three reviewers assessed the initially identified datasets for inclusion. At the time of the search, AND/OR functions were not available on the ICPSR search function, thus, the keywords *depression* and *“depressive symptoms”* had to be included in separate strings. The exclusions of the key terms *-"great depression"* was necessary to exclude studies focusing solely the economic Great Depression rather than assessing depression as an outcome. Keywords such as "*mental health*", *psychopathology*, or *internalizing* were not included in the search string because these terms were broad, and it was expected that studies would use *depression* or “*depressive symptoms*” if they measured depressive symptoms.

Several steps were taken to review IPD datasets on ICPSR for inclusion. First, reviewers examined the “At a Glance” ICPSR section to initially screen for eligibility. If there was not enough information included in this section, then reviewers assessed the “Variables” section and the “Data & Documentation” for each ICPSR record. Reviewers used key terms to search the study documentation (*depress, race, ethnicity, White*). Reviewers also retrieved publications that used the IPD dataset if more information was needed. All ICPSR study names and study numbers were inputted to an excel sheet to track inclusion and exclusion reasons of the IPD datasets. Three trained reviewers (two study authors and a trained research assistant) reviewed the IPD datasets for inclusion. All three reviewers assessed 20% of the identified IPD datasets for eligibility and had an agreement rate of 87-92%. Discrepancies were discussed among team members and the remaining IPD datasets were split between the three reviewers and independently examined for eligibility.

**Supplemental Table 1**

*PRISMA-IPD Checklist*

|  |  |  |  |
| --- | --- | --- | --- |
| **PRISMA-IPD**  **Section/topic** | **Item No** | **Checklist item** | **Reported on page** |
| **Title** | | | |
| Title | 1 | Identify the report as a systematic review and meta-analysis of individual participant data. | 1 |
| **Abstract** | | | |
| Structured summary | 2 | Provide a structured summary including as applicable: | 1 |
| **Background**: state research question and main objectives, with information on participants, interventions, comparators and outcomes. |
| **Methods**: report eligibility criteria; data sources including dates of last bibliographic search or elicitation, noting that IPD were sought; methods of assessing risk of bias. |
| **Results**: provide number and type of studies and participants identified and number (%) obtained; summary effect estimates for main outcomes (benefits and harms) with confidence intervals and measures of statistical heterogeneity. Describe the direction and size of summary effects in terms meaningful to those who would put findings into practice. |
| **Discussion:** state main strengths and limitations of the evidence, general interpretation of the results and any important implications. |
| **Other:** report primary funding source, registration number and registry name for the systematic review and IPD meta-analysis. |
| **Introduction** | | | |
| Rationale | 3 | Describe the rationale for the review in the context of what is already known. | 2-4 |
| Objectives | 4 | Provide an explicit statement of the questions being addressed with reference, as applicable, to participants, interventions, comparisons, outcomes and study design (PICOS). Include any hypotheses that relate to particular types of participant-level subgroups. | 4 |
| **Methods** | | | |
| Protocol and registration | 5 | Indicate if a protocol exists and where it can be accessed. If available, provide registration information including registration number and registry name. Provide publication details, if applicable. | 4-7 |
| Eligibility criteria | 6 | Specify inclusion and exclusion criteria including those relating to participants, interventions, comparisons, outcomes, study design and characteristics (e.g. years when conducted, required minimum follow-up). Note whether these were applied at the study or individual level i.e. whether eligible participants were included (and ineligible participants excluded) from a study that included a wider population than specified by the review inclusion criteria. The rationale for criteria should be stated. | 4-5 |
| Identifying studies - information sources | 7 | Describe all methods of identifying published and unpublished studies including, as applicable: which bibliographic databases were searched with dates of coverage; details of any hand searching including of conference proceedings; use of study registers and agency or company databases; contact with the original research team and experts in the field; open adverts and surveys. Give the date of last search or elicitation. | 4 & Suppl. Material |
| Identifying studies - search | 8 | Present the full electronic search strategy for at least one database, including any limits used, such that it could be repeated. | 4 & Suppl. Material |
| Study selection processes | 9 | State the process for determining which studies were eligible for inclusion. | 4-5, & Suppl. Material |
| Data collection processes | 10 | Describe how IPD were requested, collected and managed, including any processes for querying and confirming data with investigators. If IPD were not sought from any eligible study, the reason for this should be stated (for each such study). | 4-7 |
| If applicable, describe how any studies for which IPD were not available were dealt with. This should include whether, how and what aggregate data were sought or extracted from study reports and publications (such as extracting data independently in duplicate) and any processes for obtaining and confirming these data with investigators. |
| Data items | 11 | Describe how the information and variables to be collected were chosen. List and define all study level and participant level data that were sought, including baseline and follow-up information. If applicable, describe methods of standardising or translating variables within the IPD datasets to ensure common scales or measurements across studies. | 5-7 |
| IPD integrity | A1 | Describe what aspects of IPD were subject to data checking (such as sequence generation, data consistency and completeness, baseline imbalance) and how this was done. | 5-7 |
| Risk of bias assessment in individual studies. | 12 | Describe methods used to assess risk of bias in the individual studies and whether this was applied separately for each outcome. If applicable, describe how findings of IPD checking were used to inform the assessment. Report if and how risk of bias assessment was used in any data synthesis. | 5-7,11 |
| Specification of outcomes and effect measures | 13 | State all treatment comparisons of interests. State all outcomes addressed and define them in detail. State whether they were pre-specified for the review and, if applicable, whether they were primary/main or secondary/additional outcomes. Give the principal measures of effect (such as risk ratio, hazard ratio, difference in means) used for each outcome. | 5-7 |
| Synthesis methods | 14 | Describe the meta-analysis methods used to synthesise IPD. Specify any statistical methods and models used. Issues should include (but are not restricted to):   * Use of a one-stage or two-stage approach. * How effect estimates were generated separately within each study and combined across studies (where applicable). * Specification of one-stage models (where applicable) including how clustering of patients within studies was accounted for. * Use of fixed or random effects models and any other model assumptions, such as proportional hazards. * How (summary) survival curves were generated (where applicable). * Methods for quantifying statistical heterogeneity (such as I2 and τ2). * How studies providing IPD and not providing IPD were analysed together (where applicable). * How missing data within the IPD were dealt with (where applicable). | 6-7, & Suppl. Material |
| Exploration of variation in effects | A2 | If applicable, describe any methods used to explore variation in effects by study or participant level characteristics (such as estimation of interactions between effect and covariates). State all participant-level characteristics that were analysed as potential effect modifiers, and whether these were pre-specified. | 6-7 |
| Risk of bias across studies | 15 | Specify any assessment of risk of bias relating to the accumulated body of evidence, including any pertaining to not obtaining IPD for particular studies, outcomes or other variables. | 5-7,11 |
| Additional analyses | 16 | Describe methods of any additional analyses, including sensitivity analyses. State which of these were pre-specified. | 6-7 |
| **Results** | | | |
| Study selection and IPD obtained | 17 | Give numbers of studies screened, assessed for eligibility, and included in the systematic review with reasons for exclusions at each stage. Indicate the number of studies and participants for which IPD were sought and for which IPD were obtained. For those studies where IPD were not available, give the numbers of studies and participants for which aggregate data were available. Report reasons for non-availability of IPD. Include a flow diagram. | 7, Supplemental Figure 2 |
| Study characteristics | 18 | For each study, present information on key study and participant characteristics (such as description of interventions, numbers of participants, demographic data, unavailability of outcomes, funding source, and if applicable duration of follow-up). Provide (main) citations for each study. Where applicable, also report similar study characteristics for any studies not providing IPD. | 7, Supplemental Table 2 |
| IPD integrity | A3 | Report any important issues identified in checking IPD or state that there were none. | 7, 11 |
| Risk of bias within studies | 19 | Present data on risk of bias assessments. If applicable, describe whether data checking led to the up-weighting or down-weighting of these assessments. Consider how any potential bias impacts on the robustness of meta-analysis conclusions. | 11 |
| Results of individual studies | 20 | For each comparison and for each main outcome (benefit or harm), for each individual study report the number of eligible participants for which data were obtained and show simple summary data for each intervention group (including, where applicable, the number of events), effect estimates and confidence intervals. These may be tabulated or included on a forest plot. | Supplemental Table 2 |
| Results of syntheses | 21 | Present summary effects for each meta-analysis undertaken, including confidence intervals and measures of statistical heterogeneity. State whether the analysis was pre-specified, and report the numbers of studies and participants and, where applicable, the number of events on which it is based. | 7-8, Tables 1-3, Figure 3, Supplemental Tables 3-5 & Figure 1 |
| When exploring variation in effects due to patient or study characteristics, present summary interaction estimates for each characteristic examined, including confidence intervals and measures of statistical heterogeneity. State whether the analysis was pre-specified. State whether any interaction is consistent across trials. |
| Provide a description of the direction and size of effect in terms meaningful to those who would put findings into practice. |
| Risk of bias across studies | 22 | Present results of any assessment of risk of bias relating to the accumulated body of evidence, including any pertaining to the availability and representativeness of available studies, outcomes or other variables. | 11 |
| Additional analyses | 23 | Give results of any additional analyses (e.g. sensitivity analyses). If applicable, this should also include any analyses that incorporate aggregate data for studies that do not have IPD. If applicable, summarise the main meta-analysis results following the inclusion or exclusion of studies for which IPD were not available. | N/A |
| **Discussion** | | | |
| Summary of evidence | 24 | Summarise the main findings, including the strength of evidence for each main outcome. | 9-11 |
| Strengths and limitations | 25 | Discuss any important strengths and limitations of the evidence including the benefits of access to IPD and any limitations arising from IPD that were not available. | 11 |
| Conclusions | 26 | Provide a general interpretation of the findings in the context of other evidence. | 9-11 |
| Implications | A4 | Consider relevance to key groups (such as policy makers, service providers and service users). Consider implications for future research. | 11 |
| **Funding** | | | |
| Funding | 27 | Describe sources of funding and other support (such as supply of IPD), and the role in the systematic review of those providing such support. | 1 |

**Supplemental Table 2**

*Summary Characteristics Across the 19 Included Individual Participant Datasets*

| ICPSR Dataset | # DS | N | *M*Inc  (range) | *M*Edu  (range) | *M*Status  (range) | *M*Prestige  (range) | *M*DS  (range) | %  Dev. P. | % Female | %  R/E |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Aging, Status, and Sense of Control (ASOC), 1995, 1998, 2001 [United States] | 3 | 4,858 | 49.44  (0-800) | 13.51  (1-20) | 58.84  (1-100) | 46.26  (17-86) | 0.43  (0-3) | YA: 5,  A: 59,  OA: 38 | 58 | A: 1,  B: 6,  L: 4,  W: 89 |
| Americans' Changing Lives: Waves I, II, III, IV, and V, 1986, 1989, 1994, 2002, and 2011 | 5 | 11,729 | 41.10  (0-4,000) | 12.21  (0-17) | 52.77  (1-100) | 44.62  (17-94) | 0.37  (0-2) | YA: 1,  A: 60,  OA: 39 | 63 | A: 1,  B: 28,  L: 4,  M: 3,  N: 1,  W: 63 |
| Collaborative Psychiatric Epidemiology Surveys (CPES), 2001-2003 [United States] | 1 | 5,587 | 35.67  (0-200) | -- | -- | -- | 0.57  (0-3) | YA: 16,  A: 72,  OA: 12 | 63 | B: 86,  L: 3,  W: 11 |
| Early Childhood Longitudinal Study [United States]: Kindergarten Class of 1998-1999, Kindergarten-Eighth Grade Full Sample | 3 | 32,639 | 54.90  (0-200) | 12.72  (1-20) | -- | -- | 0.40  (0-3) | YA: 4,  A: 95,  OA: < 1 | 93 | A: 6,  B: 11,  L: 14,  M: < 1,  N: 2,  W: 67 |
| General Social Survey, 1972-2016 [Cumulative File] | 1 | 925 | 21.60  (1-25) | 13.78  (0-20) | 53.80  (1-100) | 44.03  (17-86) | 0.72  (0-3) | YA: 8,  A: 72,  OA: 21 | 55 | A: 2,  B: 15,  L: 13,  M: 6,  W: 63 |
| Health and Retirement Study (HRS) | 15 | 271,359 | 23.28  (-1-6,530) | 12.41  (0-17) | -- | -- | 0.21  (0-3) | A: 49,  OA: 51 | 57 | B: 17,  L: 10,  M: 1,  W: 71 |
| National Household Survey on Drug Abuse, 1985 | 1 | 7,976 | 11.22  (0-51) | 10.97  (0-17) | -- | -- | 0.51  (0-3) | AD: 28,  YA: 22,  A: 43,  OA: 7 | 56 | A: 1,  B: 24,  L: 25,  N: < 1,  W: 50 |
| National Household Survey on Drug Abuse, 1993 | 1 | 26,386 | 32.74  (0-336) | 11.39  (0-17) | -- | -- | 0.44  (0-3) | AD: 26,  YA: 21,  A: 50,  OA: 2 | 55 | A: 3,  B: 23,  L: 26,  N: < 1,  W: 47 |
| National Household Survey on Drug Abuse, 1994 | 1 | 4,331 | 32.48  (0-205) | 11.28  (0-17) | -- | -- | 0.44  (0-3) | AD: 26,  YA: 21,  A: 51,  OA: 2 | 55 | A: 2,  B: 23,  L: 26,  N: < 1,  W: 49 |
| National Longitudinal Study of Adolescent to Adult Health (Add Health), 1994-2008 [Public Use] | 4 | 18,188 | 45.96  (0-999) | 13.43  (0-22) | 50.85  (1-100) | 43.15  (17-87) | 0.56  (0-3) | AD: 35,  YA: 43,  A: 22 | 53 | B: 22,  L: 11,  M: 4,  N: 1,  W: 62 |
| National Longitudinal Survey of Youth (NLSY) | 22 | 117,485 | 55.89  (0-1,070) | 13.28  (1-20) | 48.61  (1-100) | 42.80  (17-86) | 0.68  (0-3) | AD: 10,  YA: 38,  A: 51 | 51 | A: 1,  B: 29,  L: 21,  M: 5,  N: 1,  W: 43 |
| National Social Life, Health and Aging Project (NSHAP): Wave 3 | 1 | 4,199 | 54.83  (12-101) | 11.74  (0-20) | -- | -- | 0.53  (0-3) | A: 41,  OA: 59 | 54 | B: 17,  L: 12,  W: 71 |
| National Social Life, Health, and Aging Project (NSHAP): Wave 1, [United States], July 2005-March 2006 | 1 | 2,913 | 44.68  (12-101) | 10.33  (0-20) | -- | -- | 0.51  (0-3) | A: 34,  OA: 66 | 52 | B: 17,  L: 11,  W: 72 |
| National Social Life, Health, and Aging Project (NSHAP): Wave 2 and Partner Data Collection, [United States], 2010-2011 | 1 | 3,107 | 48.99  (12-101) | 10.98  (0-20) | -- | -- | 0.46  (0-3) | A: 13,  OA: 87 | 53 | B: 15,  L: 11,  W: 74 |
| National Survey of Families and Households, Wave 1: 1987-1988, [United States] | 1 | 12,722 | 23.31  (0-975) | 12.40  (0-20) | 51.52  (1-100) | 42.70  (17-86) | 0.76  (0-3) | YA: 15,  A: 69,  OA: 15 | 60 | A: 1,  B: 18,  L: 8,  N: < 1,  W: 73 |
| National Survey of Families and Households, Wave 2: 1992-1994, [United States] | 2 | 15,129 | 49.85  (0-1,000) | 12.85  (0-20) | 57.59  (1-100) | 45.27  (17-86) | 0.70  (0-3) | YA: 2,  A: 82,  OA: 16 | 57 | A: 1,  B: 15,  L: 6,  N: < 1,  W: 78 |
| National Survey of Families and Households, Wave 3: 2001-2003, [United States] | 2 | 6,734 | 18.34  (0-1,000) | 13.31  (0-20) | 62.86  (1-100) | 47.56  (17-86) | 0.61  (0-3) | A: 72,  OA: 28 | 61 | A: < 1,  B: 13,  L: 4,  N: < 1,  W: 83 |
| New Family Structures Study | 1 | 2,787 | 56.11  (5-200) | 13.87  (0-20) | -- | -- | 0.96  (0-3) | YA: 43,  A: 57 | 68 | B: 15,  L: 16,  M: 4,  W: 65 |
| Religion, Aging, and Health Survey, 2001, 2004 [United States] | 2 | 2,428 | 24.81  (5-80) | 11.4  (1-25) | -- | -- | 0.51  (0-3) | OA: 100 | 62 | B: 46,  M: 4,  W: 50 |
| *Note.* ICPSR = Inter-university Consortium for Political and Social Research; # DS = number of participant-level files extracted from each dataset; *N* = sample size; *M*Inc = mean income; *M*Edu= mean years of education; *M*Status = mean occupational status; *M*Prestige = mean occupational prestige; *M*DS = mean depressive symptoms;range = range of values across participants; % Dev. P. = percentage of participants in each developmental period (AD = adolescents 12 to 18 years, YA = young adults 18 to 25 years, A = adults 26 to 64 years, OA = older adults 65+ years); % R/E = percentage of participants in each racial/ethnic sample (A = Asian American, B = Black, L = Latinx, M = Multiracial, N = Native American, W = White). Double dash (--) indicates missing data. | | | | | | | | | | |

**Supplemental Table 3**

*Number of Correlations (Pearson’s r) Extracted and Corresponding Sample Size*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1. Income |  | 484,405 | 406,348 | 406,348 | 83,755 | 83,755 | 82,248 | 82,248 | 484,405 | 299,785 |
| 2. Income2 | 1,026 |  | 406,348 | 406,348 | 83,755 | 83,755 | 82,248 | 82,248 | 484,405 | 299,785 |
| 3. Education | 953 | 953 |  | 420,574 | 59,075 | 59,075 | 57,688 | 57,688 | 420,574 | 270,388 |
| 4. Education2 | 953 | 953 | 963 |  | 59,075 | 59,075 | 57,688 | 57,688 | 420,574 | 270,388 |
| 5. Occ. Status | 522 | 522 | 494 | 494 |  | 86,829 | 83,723 | 83,723 | 86,829 | 43,923 |
| 6. Occ. Status2 | 522 | 522 | 494 | 494 | 526 |  | 83,723 | 83,723 | 86,829 | 43,923 |
| 7. Occ. Prestige | 521 | 521 | 494 | 494 | 525 | 525 |  | 85,212 | 85,212 | 42,842 |
| 8. Occ. Prestige2 | 521 | 521 | 494 | 494 | 525 | 525 | 525 |  | 85,212 | 42,842 |
| 9. Dep. Symptoms | 1,026 | 1,026 | 963 | 963 | 526 | 526 | 525 | 525 |  | 307,264 |
| 10. Dep. Symptoms PW | 572 | 572 | 554 | 554 | 314 | 314 | 316 | 316 | 574 |  |

*Note.* Lower diagonal = number of correlations. Upper diagonal = corresponding sample size. Occ. = Occupational; Dep. = Depressive; PW = Prior Wave.

**Supplemental Table 4**

*Average Correlation Matrix Across Datasets for Model 1*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 |
| 1. Income |  | 0.266 | 0.246 | -0.122 | -0.115 |
| 2. Education | 0.266 |  | 0.438 | -0.138 | -0.149 |
| 3. Occ. Status/Prestige | 0.278 | 0.435 |  | -0.093 | -0.085 |
| 4. Dep. Symptoms | -0.123 | -0.138 | -0.101 |  | 0.477 |
| 5. Dep. Symptoms PW | -0.116 | -0.149 | -0.09 | 0.477 |  |

*Note.* Lower diagonal = Model 2 with occupational status included. Upper diagonal = Model 2 with occupational prestige included. Occ. = Occupational; Dep. = Depressive; PW = Prior Wave.

**Supplemental Table 5**

*Average Correlation Matrix Across Datasets for Model 2*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1. Income |  | 0.704 | 0.273 | 0.043 | 0.242 | 0.049 | -0.119 | -0.114 |
| 2. Income2 | 0.703 |  | 0.122 | 0.070 | 0.093 | 0.054 | -0.036 | -0.040 |
| 3. Education | 0.272 | 0.121 |  | -0.069 | 0.431 | 0.141 | -0.132 | -0.146 |
| 4. Education2 | 0.042 | 0.069 | -0.068 |  | 0.158 | 0.182 | 0.019 | 0.037 |
| 5. Occ. Status/Prestige | 0.273 | 0.102 | 0.427 | 0.134 |  | 0.243 | -0.096 | -0.088 |
| 6. Occ. Status/Prestige2 | 0.003 | 0.045 | 0.030 | 0.145 | -0.039 |  | -0.017 | -0.025 |
| 7. Dep. Symptoms | -0.120 | -0.037 | -0.133 | 0.018 | -0.104 | 0.001 |  | 0.473 |
| 8. Dep. Symptoms PW | -0.114 | -0.04 | -0.145 | 0.036 | -0.092 | 0.006 | 0.472 |  |

*Note.* Lower diagonal = Model 2 with occupational status included. Upper diagonal = Model 2 with occupational prestige included. Occ. = Occupational; Dep. = Depressive; PW = Prior Wave.

**Supplemental Figure 1**

*Histogram Plots of Correlations between Study Variables*

**

*Note.* The histograms in this figure show the distribution of correlations by direction and magnitude across all datasets. The x-axis is Pearson’s r, which ranges from -1.0 to 1.0. The y-axis is the frequency. INCMC = income; INC2 = income squared; EDUMC = years of education; EDU2 = years of education squared; OCCSMC = occupational status; OCCS2 = occupational status squared; OCCP = occupational prestige; OCCP2 = occupational prestige squared; DEP = depressive symptoms; DEPPW = depressive symptom from prior wave.

**Supplemental Figure 2**

*Flow Diagram of the Inclusion and Exclusion Process*

*Note.* The shaded boxes were part of the initially identified datasets by (Causadias et al., 2018). The unshaded boxes indicate the inclusion and exclusion process applied in the current study. IPD = individual participant data.

**One-Stage Meta-Analytic Structural Equation Modeling**

In one-stage meta-analytic structural equation modeling (one-stage MASEM), correlation matrices from individual datasets are treated as participants in a SEM and the correlations within each matrix are treated similar to variables. If there is a missing correlation for a specific matrix, this is handled with FIML estimation. Although FIML assumed data is missing at random and some data may be missing due to our coding decisions, we believe the correlations in the overall matrix and the SEM path estimates represent plausible values in their respective population. The forumals used to calculate the average correlation and path model are shown in Equaition 1 and Equation 2 (see Jak & Cheung, 2019, for a detailed breakdown).

(1)

(2)

The mean and covariance structures in the one-stage MASEM are derived from vector of correlations and their variances, respectively (Jak & Cheung, 2019). Similar to the regression framework for a random-effects meta-analysis, the vector of correlations for each sample correlation matrix () is a function of its mean vector of correlation coefficients (the average correlation matrix, ), a vector of deviations of each sample from (, Var() = , and assumed sampling error (, Var() = ).

In the one-stage MASEM, the specified path model is nested within as seen in Equation 2, which includes an identity matrix (**I**), a selection matrix (**F**) for observed (1’s) and latent (0’s) variables, a symmetrical matrix of regression coefficients (SEM parameters, **A**), and a symmetrical matrix of variance and covariances (**S**; Jak & Cheung, 2019). When correlation matrices are used, such as in the present study, the variances of exogenous variables are fixed to 1 in **S** (Jak & Cheung, 2019). Correlations were included in the current study instead of covariances because the prior are standardized and more comparable across IPD despite their differences in sampling and measurement (Borenstein et al., 2021). SEM parameters in specified path models are estimated with ML, or FIML when samples have missing correlations. For moderator analysis, which is a regression test, a matrix of moderators for each dataset () is included to estimate the path coefficient for each level of the moderator () and the intercept when each moderator is set to zero (). When moderators are included, the vector of deviations of each sample () is residual variability unaccounted for by the moderator(s) included. Therefore, the of a model with moderators and without moderators can be used to compute the amount of variability between SEM parameters that is explained by the moderator(s), *R*2. Jak & Cheung (2019) recommend scaling or centering continuous variables for stability in estimates.

**Supplemental Table 6**

*Parameter Estimates from Each Component of Socioeconomic Status to Depressive Symptoms for Model 1 (Linear Associations Only) and Model 2 (Linear and Quadratic Associations) Based on a One-Stage Meta-Analytic Structural Equation Model Ignoring Dependencies*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Exogenous Variables | Model 1  *R*2 = .23a | | | Model 2  *R*2 = .23a | | |
|  | 95% CI | *p* |  | 95% CI | *p* |
|  | With Occupational Status | | | | | |
| Income | -.051 | [-.059, -.043] | .000 | -.077 | [-.090, -.063] | .000 |
| Income2 | - | - | - | .039 | [.029, .049] | .000 |
| Education | -.039 | [-.053, -.025] | .000 | -.038 | [-.053, -.024] | .000 |
| Education2 | - | - | - | .006 | [-.004, .016] | .249 |
| Occ. Status | -.035 | [-.048, -.021] | .000 | -.032 | [-.046, -.019] | .000 |
| Occ. Status2 | - | - | - | .008 | [-.003, .018] | .162 |
| Dep. Symptoms PW | .451 | [.438, .465] | .000 | .450 | [.437, .464] | .000 |
|  | With Occupational Prestige | | | | | |
| Income | -.053 | [-.061, -.045] | .000 | -.079 | [-.092, -.065] | .000 |
| Income2 | - | - | - | .039 | [.029, .049] | .000 |
| Education | -.041 | [-.056, -.027] | .000 | -.041 | [-.056, -.026] | .000 |
| Education2 | - | - | - | .004 | [-.006, .015] | .413 |
| Occ. Prestige | -.028 | [-.041, -.015] | .000 | -.028 | [-.042, -.014] | .000 |
| Occ. Prestige2 | - | - | - | .015 | [.004, .025] | .005 |
| Dep. Symptoms PW | .451 | [.438, .465] | .000 | .450 | [.437, .464] | .000 |
| *Note.* 95% CI = 95% Confidence Interval; Occ. = Occupational; Dep. = Depressive; PW = Prior Wave; *p* = *p-value*. a = *R*2 values are the same between the model with occupational status and the model with occupational prestige. | | | | | | |

**Supplemental Table 7**

*Model 2 Path Estimates to Depressive Symptoms Separated by Developmental Period Based on a One-Stage Meta-Analytic Structural Equation Model Ignoring Dependencies*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Exogenous Variables | Adolescents  (12-17) | Young Adults  (18-25) | Middle-Aged Adults (26-64) | Older Adults  (65+) |
| [95% CI] | [95% CI] | [95% CI] | [95% CI] |
| Income | -.026  [-.061, .008] | -.052\*\*\*  [-.071, -.034] | -.103\*\*\*  [-.121, -.085] | -.064\*\*\*  [-.098, -.030] |
| Income2 | .024  [-.003, .051] | .028\*\*\*  [.012, .044] | .054\*\*\*  [.041, .068] | .029\*  [.004, .055] |
| Education | .012  [-.045, .067] | -.052\*\*\*  [-.078, -.027] | -.048\*\*\*  [-.066, -.031] | -.009  [-.060, .043] |
| Education2 | -.056\*  [-.099, -.012] | -.004  [-.019, .011] | .010  [-.002, .022] | .038\*  [.001, .076] |
| Occ. Status | -.022  [-.057, .012] | -.018  [-.039, .004] | -.028\*\*\*  [-.041, -.014] | -.060  [-.147, .028] |
| Occ. Status2 | -.001  [-.030, .028] | .010  [-.009, .029] | .017\*\*  [.005, .029] | -.038  [-.101, .025] |
| DS Prior Wave | .379\*\*\*  [.336, .423] | .390\*\*\*  [.369, .411] | .450\*\*\*  [.431, .470] | .503\*\*\*  [.478, .529] |
| *Note.* 95% CI = 95% Confidence Interval; Occ. = Occupational; DS = Depressive Symptoms.  \**p* < .05. \*\**p* < .01. \*\*\**p* < .001. adolescents (12-17 years), young adults (18-25 years), middle-aged adults (26-64 years), older adults (65 years and older). | | | | | |

**Supplemental Table 8**

*Model 2 Path Estimates to Depressive Symptoms Separated by Race/Ethnicity Based on a One-Stage Meta-Analytic Structural Equation Model Ignoring Dependencies*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Exogenous Variables | Asian  American | Black | Latinx | Multiracial | Native American | White |
| [95% CI] | [95% CI] | [95% CI] | [95% CI] | [95% CI] | [95% CI] |
| Income | -.051  [-.112, .011] | -.085\*\*\*  [-.109, -.061] | -.072\*\*\*  [-.101, -.044] | -.069\*\*\*  [-.109, -.029] | -.015  [-.113, .082] | -.084\*\*\*  [-.108, -.061] |
| Income2 | .023  [-.027, .074] | .039\*\*\*  [.020, .059] | .043\*\*\*  [.021, .064] | .028  [-.004, .060] | -.024  [-.089, .041] | .047\*\*\*  [.029, .065] |
| Education | .031  [-.090, .152] | -.065\*\*\*  [-.089, -.041] | -.018  [-.046, -010] | -.042  [-.104, .021] | -.006  [-.109, .098] | -.035\*\*  [-.056, -.013] |
| Education2 | -.000  [-.093, .092] | -.001  [-.022, .019] | -.020\*  [-.037, -.002] | .010  [-.040, .060] | .017  [-.066, .099] | .024\*\*\*  [.011, .038] |
| Occ. Status | -.087  [-.267, .093] | -.008  [-.033, .018] | -.032\*  [-.061, -.002] | -.036  [-.076, -003] | -.079  [-.171, .013] | -.045\*\*\*  [-.069, -.021] |
| Occ. Status2 | .082  [-.073, .237] | .011  [-.011, .034] | .004  [-.019, .026] | .011  [-.025, .048] | -.026  [-.102, .050] | .003  [-.013, .018] |
| DS Prior Wave | .292\*\*\*  [.214, .369] | .459\*\*\*  [.436, .481] | .419\*\*\*  [.389, .450] | .471\*\*\*  [.425, .516] | .331\*\*\*  [.237, .425] | .476\*\*\*  [.457, .494] |
| *Note.* 95% CI = 95% Confidence Interval; Occ. = Occupational; DS = Depressive Symptoms.  \**p* < .05. \*\**p* < .01. \*\*\**p* < .001. | | | | | | |

**References**

Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2021). *Introduction to Meta-Analysis* (2nd edition). John Wiley & Sons, Ltd.

Causadias, J. M., Korous, K. M., Cahill, K. M., & Fried, E. I. (2018). Protocol for a systematic review and meta-analysis of individual participant data on the magnitude of racial disparities of depressive symptoms in the United States. *PsyArXiv  Preprints*, 1–30. https://doi.org/10.31234/osf.io/26d85

Hakulinen, C., Elovainio, M., Pulkki-Råback, L., Virtanen, M., Kivimäki, M., & Jokela, M. (2015). Personality and depressive symptoms: Individual participant meta-analysis of 10 cohort studies. *Depression and Anxiety*, *32*(7), 461–470. https://doi.org/10.1002/da.22376

Jak, S., & Cheung, M. W.-L. (2019). Meta-analytic structural equation modeling with moderating effects on SEM parameters. *Psychological Methods*, *25*(4), 430–455. https://doi.org/10.1037/met0000245

Jokela, M., Batty, G. D., Nyberg, S. T., Virtanen, M., Nabi, H., Singh-Manoux, A., & Kivimäki, M. (2013). Personality and all-cause mortality: Individual-participant meta-analysis of 3,947 deaths in 76,150 Adults. *American Journal of Epidemiology*, *178*(5), 667–675. https://doi.org/10.1093/aje/kwt170