

Will We Have Happier Older Lives With Kids Living Nearby?

Abstract - Jason Huang

Background

Generally, aging is considered more difficult without children around. In some cultures, namely Eastern cultures, the elderly are primarily taken care of by their children who live nearby. And, it is encouraged that people live geographically close to their retired parents in these cultures. This mentality might not be as common in the U.S. This project investigates the association between having children who live far and feeling depressed. Specifically, for older Americans who have any children and said children do not live with them, are they more likely to feel sad or depressed for two weeks in a row within 12 months if their children live more than 10 miles away from them?

Methods

In this secondary analysis of the 2016 cohort in the Health and Retirement Study (HRS), I look at the status of having felt depressed for two weeks in a row in the past year as the outcome of interest. Whether or not a subject has a child who lives within ten miles from the subject's residence will be the exposure of interest. The covariates include sex, age, insurance, and physical health conditions, as well as household information like household members, resident non-kids, etc.

A random sample of 1000 individuals, from 8192 individuals, is taken after applying the exclusion criteria.

Propensity scores predicting having children who don't live within 10 miles are estimated using the covariates mentioned above. 1:1 matching with and without replacement, and 1:1 caliper matching are performed to estimate the odds ratio using conditional logistic regression. Inverse propensity score weighting is used as well, and the odds ratio are estimated, both with the weights alone and with the weights and linear propensity score combined.

Results

The 1:1 caliper matching without replacement showed a point estimate of the odds ratio of 0.717, with a 95% confidence interval of (0.484, 1.060). The double-robust estimation from the

propensity score weighting showed a point estimate of 0.744, with a 95% CI of (0.519, 1.068). The balance between the exposed and the control group were well achieved in both methods.

Conclusions

We don't see statistically detectable evidence of a causal effect between having children who live more than 10 miles away and feeling depressed for two weeks in a row. Future study on this topic can take into account more information on important covariates like race, psychological conditions, marital status, SES, etc.

Will We Have Happier Older Lives With Kids Living Nearby?

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Background

- In general, aging is considered more difficult without children around.
- In some cultures, namely Eastern cultures, the elderly are primarily taken care of by their children who live nearby.
- And, it is encouraged that people live geographically close to their retired parents in these cultures.
- This mentality might not be as common in the U.S.

The Research Question

- For **older Americans** who have any children and said children do not live with them, are they more likely to **feel sad or depressed for two weeks in a row within 12 months** if their children **live more than 10 miles away from them** ?
- Participants: from the National Health and Retirement Study 2016. Excluded if
 - Younger than 60;
 - live in a nursing home;
 - without living children who they are in contact with;
 - live with their children.

Data Source

- The Health and Retirement Study (HRS) is a national longitudinal survey that has over 37,000 individuals over 50 years of age.
 - multi-stage area probability design
 - geographical stratification and clustering were involved
 - oversample certain demographic groups (African Americans, Hispanics, and residents in the state of Florida)
- Exclusion (Original total: 20,821)

Criteria	Have resident kids	Live in nursing homes	No child alive in contact	No younger than 60	Complete cases
Sample size after criterion applied	14,113	13,700	11,774	8,379	8,192

Outcome and Exposure

- Outcome (Binary)

- Feel depressed
- Answered “Yes” to
 - During the last 12 months, was there ever a time when you felt sad, blue, or depressed for two weeks or more in a row?

- Exposure

- Children live far from them
- Answered “No” to
 - Do any of your children who do not live with you live within 10 miles of you?

Covariates (11 used)

- Demographics
 - Sex, age, race(unavailable)
 - Working status (working, unemployed, retired, etc.)
- Household
 - #Kids in contact, #non-resident kids, #resident non-kids
 - #Household members
- Self-rated Health (5 levels)
- Type of Interview (Telephone or in-person)
- Insurance (whether on medicare, medicaid, uninsured)

Methods

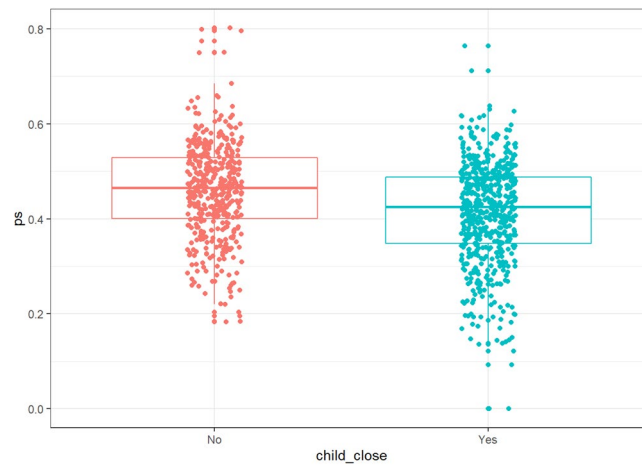
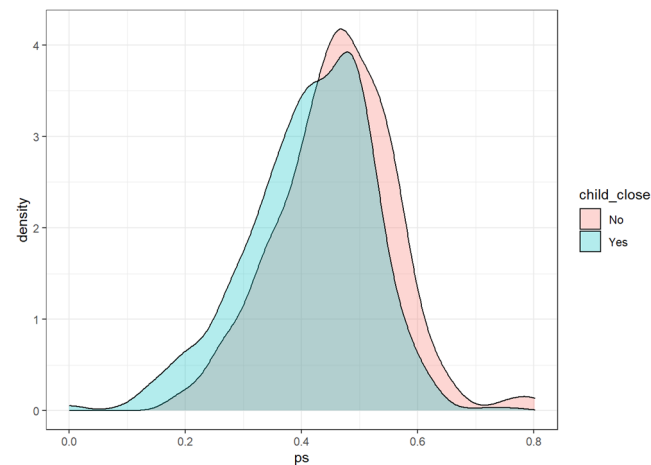
- Random Sample to 1000 total subjects
- 1:1 Greedy matching without replacement
- 1:1 Matching with replacement
- 1:1 Caliper matching without replacement
- ATT Weighting (Inverse PS Weighting)

Methods, cont'd

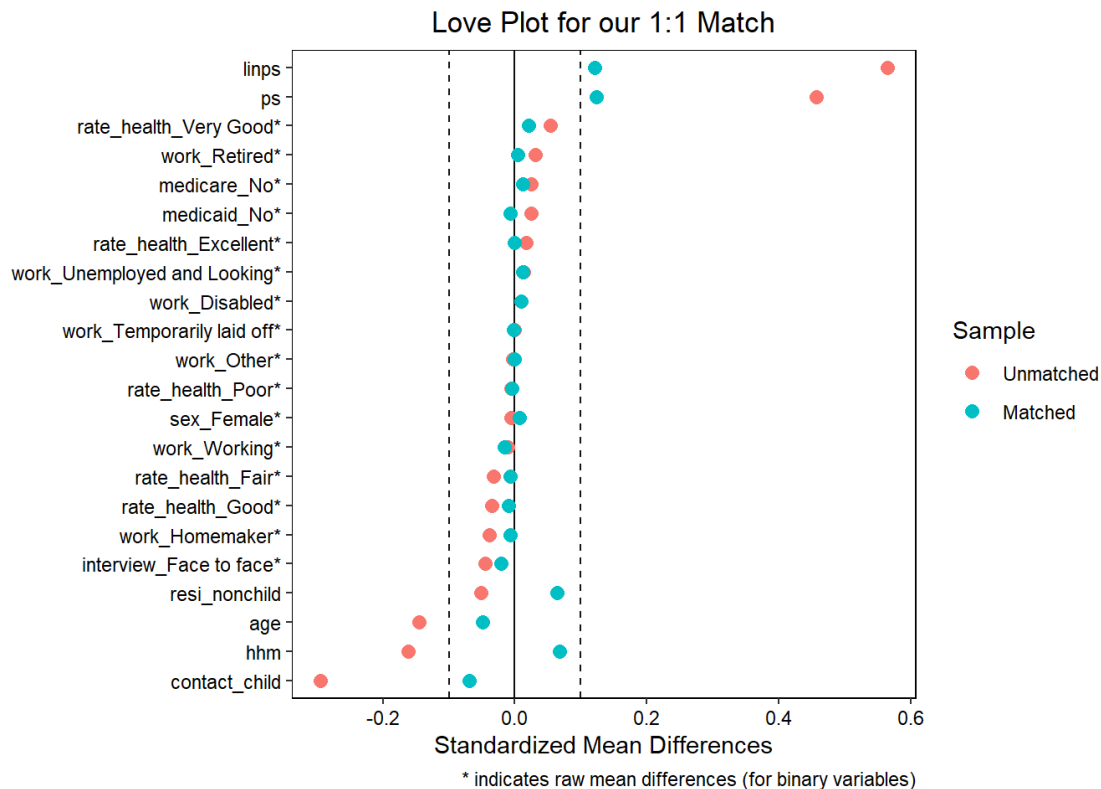
- 1:1 Greedy matching without replacement
 - 433 Exposed : 433 Control
- 1:1 Matching with replacement
 - 433 Exposed : 272 Unique Control
- 1:1 Caliper matching without replacement
 - 399 Exposed : 399 Control
- ATT Weighting (Inverse PS Weighting)

PS Model

- Logistic regression to predict the exposure (kids live far) with 11 covariates.
 - PS in exposed: [0.18, 0.80]
 - PS in control: [0.00, 0.76]



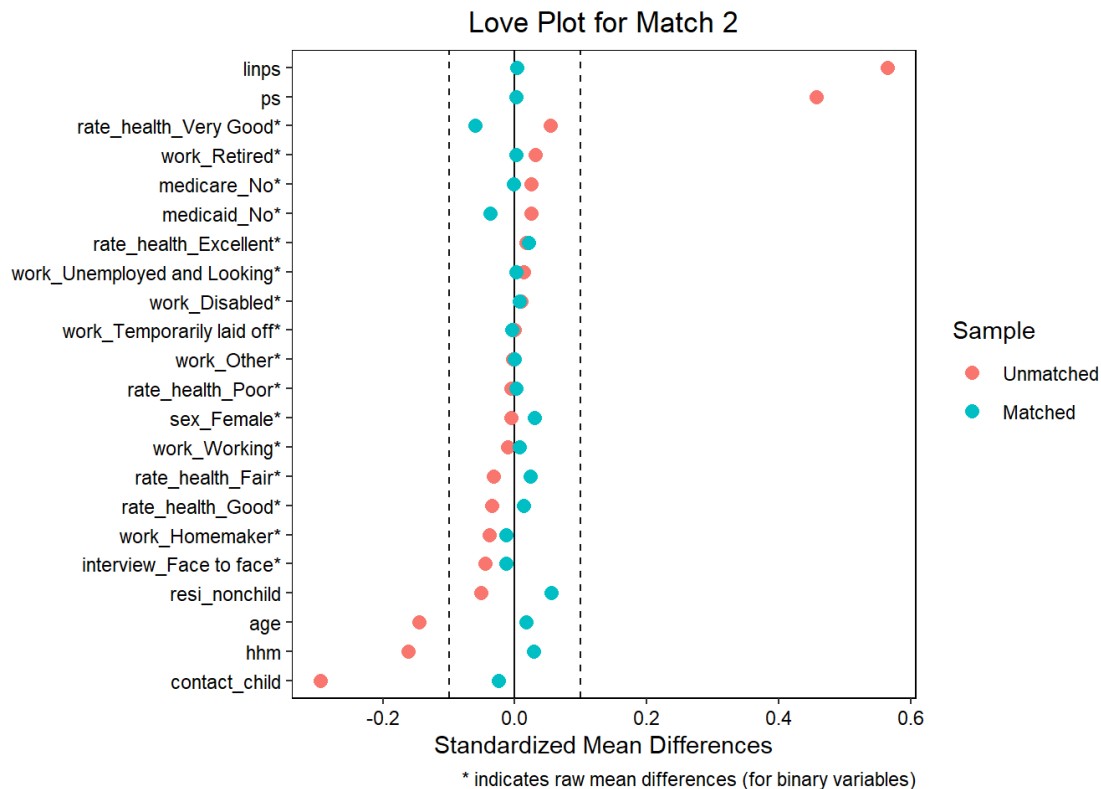
Match 1 1:1 Greedy matching w/o replacement



Match 1 Rubin's Rules

status	Unmatched	Matched
Rule1	0.56	0.12
Rule2	0.22	1.34

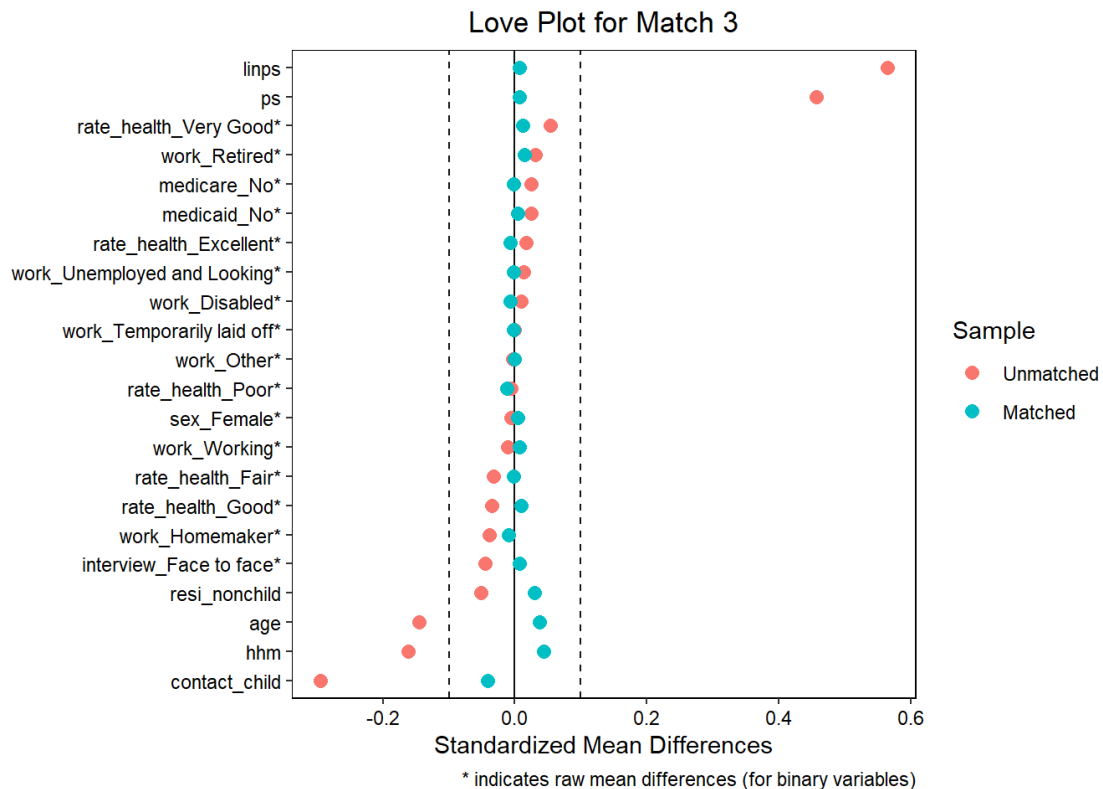
Match 2 1:1 Matching with replacement



Match 2 Rubin's Rules

status	Unmatched	Match1	Match2
Rule1	0.564	0.121	0.003
Rule2	0.224	1.341	1.018

Match 3 1:1 Caliper matching w/o replacement



Match 3 Rubin's Rules

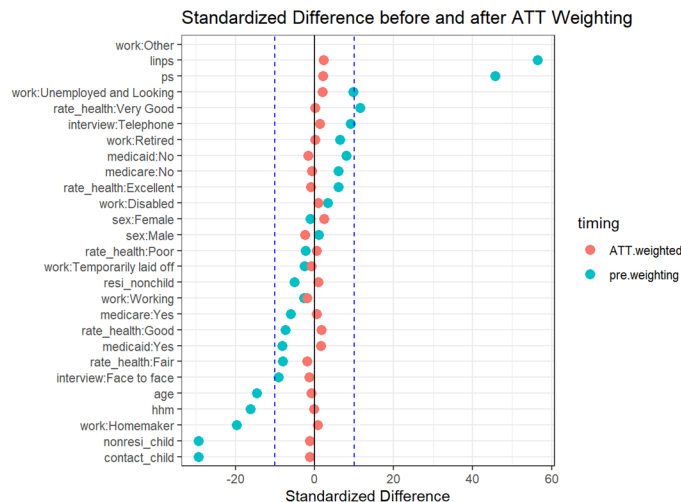
status	Unmatched	Match1	Match2	Match3
Rule1	0.564	0.121	0.003	0.006
Rule2	0.224	1.341	1.018	1.007

Match 2 & 3 Results Compared to Unadjusted

Odds Ratio Comparison

Methods	estimate	std.error	conf.low	conf.high
Unadjusted	0.795	0.175	0.562	1.118
1:1 Matching with Replacement	0.718	0.184	0.501	1.029
1:1 Caliper Matching without Replacement	0.717	0.200	0.484	1.060

Weighting ATT: Inverse PS Weights



status	Unmatched	Match1	Match2	Match3	Weighting
Rule1	0.564	0.121	0.003	0.006	-0.009
Rule2	0.224	1.341	1.018	1.007	0.965

Weighting Results Added to Comparison

- Estimation with weights only
- Estimation with weights and linear PS (Double Robust)

Odds Ratio Comparison

Methods	estimate	std.error	conf.low	conf.high
Unadjusted	0.795	0.175	0.562	1.118
1:1 Matching with Replacement	0.718	0.184	0.501	1.029
1:1 Caliper Matching without Replacement	0.717	0.200	0.484	1.060
ATT Weighting	0.744	0.183	0.520	1.066
Double Robust with ATT Weights	0.744	0.184	0.519	1.068

Conclusions & Next Steps

- We don't see strong evidence that having children that live more than 10 miles from them causes older Americans to feel depressed.
 - None of the analyses showed detectable evidence at $\alpha=0.05$.
- Next steps
 - Understand more covariates: race, psychological conditions, marital status, etc.
 - Less missing in: military, number of living children, education, financial stability, etc.
 - Disabilities

Statistical Considerations

- Match on specific covariates?
 - Age
 - Non-resident children
 - Total children
- Stratify by Age?
- Kids in contact as a secondary outcome?

Thanks!