AI Parenting Survey

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### Full Model Results

## Linear Regression

##   
## Call:  
## lm(formula = TAM ~ Age54 + sex.mf + education.2lvl + race4.lvl +   
## language.2lvl + Income68.5lvl + numberchild.2lvl + ParentProbTech +   
## NumDevInt, data = AI.Par.Surv\_model.df)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -2.8574 -0.6364 0.1405 0.6596 2.7596   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 1.369950 0.384731 3.561 0.000441 \*\*\*  
## Age54 -0.003330 0.008384 -0.397 0.691538   
## sex.mfMale 0.166931 0.169329 0.986 0.325150   
## education.2lvlCollege Degree 0.196852 0.149666 1.315 0.189605   
## race4.lvlBlack 0.050654 0.237324 0.213 0.831155   
## race4.lvlHispanic 0.490757 0.254676 1.927 0.055097 .   
## race4.lvlOther 0.128576 0.249184 0.516 0.606311   
## language.2lvlOther -0.472203 0.265993 -1.775 0.077055 .   
## Income68.5lvl$25k - <$50k -0.032299 0.206221 -0.157 0.875665   
## Income68.5lvl$50k - <$75k -0.105440 0.215409 -0.489 0.624920   
## Income68.5lvl$75k - <$100k 0.283167 0.230282 1.230 0.219966   
## Income68.5lvl>=$100k -0.035826 0.252742 -0.142 0.887390   
## numberchild.2lvl1 0.203554 0.142057 1.433 0.153116   
## ParentProbTech 0.426947 0.055011 7.761 2.06e-13 \*\*\*  
## NumDevInt 0.145159 0.034871 4.163 4.31e-05 \*\*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 1.068 on 254 degrees of freedom  
## (11 observations deleted due to missingness)  
## Multiple R-squared: 0.363, Adjusted R-squared: 0.3279   
## F-statistic: 10.34 on 14 and 254 DF, p-value: < 2.2e-16

## sex.mfMale education.2lvlCollege Degree   
## 1.1816732 1.2175636   
## race4.lvlBlack race4.lvlHispanic   
## 1.0519592 1.6335523   
## race4.lvlOther language.2lvlOther   
## 1.1372080 0.6236271   
## Income68.5lvl$25k - <$50k Income68.5lvl$50k - <$75k   
## 0.9682167 0.8999287   
## Income68.5lvl$75k - <$100k   
## 1.3273263

## term partial.etasq  
## 1 Age54 0.021  
## 2 sex.mf 0.016  
## 3 education.2lvl 0.033  
## 4 race4.lvl 0.021  
## 5 language.2lvl 0.004  
## 6 Income68.5lvl 0.021  
## 7 numberchild.2lvl 0.001  
## 8 ParentProbTech 0.276  
## 9 NumDevInt 0.064

## [1] 0.9464001

## [1] -0.04843798

## [1] 0.5076198

## GLM Regression (family = Gamma)

##   
## Call:  
## glm(formula = TAM ~ Age54 + sex.mf + education.2lvl + race4.lvl +   
## language.2lvl + Income68.5lvl + numberchild.2lvl + ParentProbTech +   
## NumDevInt, family = Gamma, data = AI.Par.Surv\_model.df)  
##   
## Deviance Residuals:   
## Min 1Q Median 3Q Max   
## -1.09922 -0.20658 0.03892 0.18430 0.78638   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 0.4632578 0.0373990 12.387 < 2e-16 \*\*\*  
## Age54 0.0005057 0.0008227 0.615 0.539329   
## sex.mfMale -0.0096671 0.0142766 -0.677 0.498941   
## education.2lvlCollege Degree -0.0151768 0.0132304 -1.147 0.252413   
## race4.lvlBlack -0.0064115 0.0203570 -0.315 0.753056   
## race4.lvlHispanic -0.0327867 0.0210437 -1.558 0.120472   
## race4.lvlOther -0.0094087 0.0205849 -0.457 0.648013   
## language.2lvlOther 0.0313413 0.0227217 1.379 0.168998   
## Income68.5lvl$25k - <$50k 0.0052324 0.0189630 0.276 0.782828   
## Income68.5lvl$50k - <$75k 0.0097804 0.0189930 0.515 0.607038   
## Income68.5lvl$75k - <$100k -0.0224105 0.0198057 -1.132 0.258905   
## Income68.5lvl>=$100k 0.0076739 0.0214831 0.357 0.721234   
## numberchild.2lvl1 -0.0139863 0.0126812 -1.103 0.271107   
## ParentProbTech -0.0362167 0.0052499 -6.899 4.16e-11 \*\*\*  
## NumDevInt -0.0106019 0.0031066 -3.413 0.000748 \*\*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## (Dispersion parameter for Gamma family taken to be 0.1186597)  
##   
## Null deviance: 50.943 on 268 degrees of freedom  
## Residual deviance: 37.591 on 254 degrees of freedom  
## (11 observations deleted due to missingness)  
## AIC: 901.49  
##   
## Number of Fisher Scoring iterations: 5

## sex.mfMale education.2lvlCollege Degree   
## 0.9903795 0.9849378   
## race4.lvlBlack race4.lvlHispanic   
## 0.9936090 0.9677450   
## race4.lvlOther language.2lvlOther   
## 0.9906354 1.0318376   
## Income68.5lvl$25k - <$50k Income68.5lvl$50k - <$75k   
## 1.0052461 1.0098284   
## Income68.5lvl$75k - <$100k   
## 0.9778388

## [1] -0.8412246

## [1] 0.07495304

## [1] -0.4161496

### Reduced Model Results

## Linear Regression

##   
## Call:  
## lm(formula = TAM ~ Age54 + sex.mf + education.2lvl + Income68.5lvl +   
## ParentProbTech + NumDevInt, data = AI.Par.Surv\_model.df)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -2.9849 -0.6425 0.1250 0.7279 2.7379   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 1.592405 0.349520 4.556 7.92e-06 \*\*\*  
## Age54 -0.005666 0.007959 -0.712 0.477   
## sex.mfMale 0.219124 0.161999 1.353 0.177   
## education.2lvlCollege Degree 0.150063 0.144088 1.041 0.299   
## Income68.5lvl$25k - <$50k -0.109957 0.195488 -0.562 0.574   
## Income68.5lvl$50k - <$75k -0.033768 0.204733 -0.165 0.869   
## Income68.5lvl$75k - <$100k 0.300339 0.216419 1.388 0.166   
## Income68.5lvl>=$100k -0.030974 0.242942 -0.127 0.899   
## ParentProbTech 0.422236 0.052395 8.059 2.53e-14 \*\*\*  
## NumDevInt 0.138299 0.032964 4.195 3.70e-05 \*\*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 1.061 on 269 degrees of freedom  
## (1 observation deleted due to missingness)  
## Multiple R-squared: 0.3447, Adjusted R-squared: 0.3228   
## F-statistic: 15.72 on 9 and 269 DF, p-value: < 2.2e-16

## (Intercept) Age54   
## 4.9155589 0.9943501   
## sex.mfMale education.2lvlCollege Degree   
## 1.2449861 1.1619078   
## Income68.5lvl$25k - <$50k Income68.5lvl$50k - <$75k   
## 0.8958730 0.9667962   
## Income68.5lvl$75k - <$100k Income68.5lvl>=$100k   
## 1.3503162 0.9695004   
## ParentProbTech NumDevInt   
## 1.5253689 1.1483191

## term partial.etasq  
## 1 Age54 0.017  
## 2 sex.mf 0.015  
## 3 education.2lvl 0.030  
## 4 Income68.5lvl 0.019  
## 5 ParentProbTech 0.274  
## 6 NumDevInt 0.061

## [1] 0.9827025

## [1] -0.08680782

## [1] 0.5115966

## GLM Regression (family = Gamma)

##   
## Call:  
## glm(formula = TAM ~ Age54 + sex.mf + education.2lvl + Income68.5lvl +   
## ParentProbTech + NumDevInt, family = Gamma, data = AI.Par.Surv\_model.df)  
##   
## Deviance Residuals:   
## Min 1Q Median 3Q Max   
## -1.12657 -0.20266 0.01881 0.20076 0.79058   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 0.4470858 0.0336373 13.291 < 2e-16 \*\*\*  
## Age54 0.0007324 0.0007742 0.946 0.344981   
## sex.mfMale -0.0120785 0.0136180 -0.887 0.375898   
## education.2lvlCollege Degree -0.0128057 0.0127058 -1.008 0.314429   
## Income68.5lvl$25k - <$50k 0.0116185 0.0178893 0.649 0.516593   
## Income68.5lvl$50k - <$75k 0.0044453 0.0179543 0.248 0.804641   
## Income68.5lvl$75k - <$100k -0.0244740 0.0184947 -1.323 0.186860   
## Income68.5lvl>=$100k 0.0073170 0.0207001 0.353 0.724009   
## ParentProbTech -0.0362781 0.0050048 -7.249 4.47e-12 \*\*\*  
## NumDevInt -0.0103034 0.0029213 -3.527 0.000494 \*\*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## (Dispersion parameter for Gamma family taken to be 0.1147454)  
##   
## Null deviance: 51.597 on 278 degrees of freedom  
## Residual deviance: 38.495 on 269 degrees of freedom  
## (1 observation deleted due to missingness)  
## AIC: 918.92  
##   
## Number of Fisher Scoring iterations: 5

## (Intercept) Age54   
## 1.5637485 1.0007326   
## sex.mfMale education.2lvlCollege Degree   
## 0.9879942 0.9872760   
## Income68.5lvl$25k - <$50k Income68.5lvl$50k - <$75k   
## 1.0116862 1.0044552   
## Income68.5lvl$75k - <$100k Income68.5lvl>=$100k   
## 0.9758230 1.0073438   
## ParentProbTech NumDevInt   
## 0.9643721 0.9897495

## [1] -0.8839088

## [1] 0.1153613

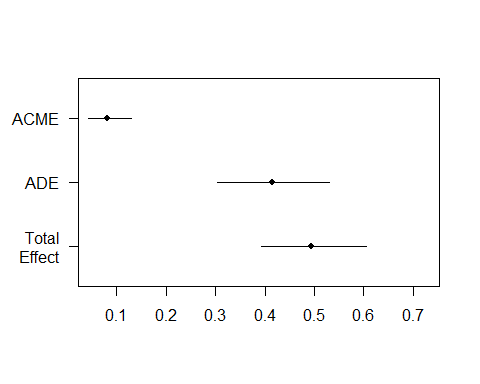
## [1] -0.4300865

### Mediation Analysis: Mediation package

## Linearity Assumption

## Running nonparametric bootstrap

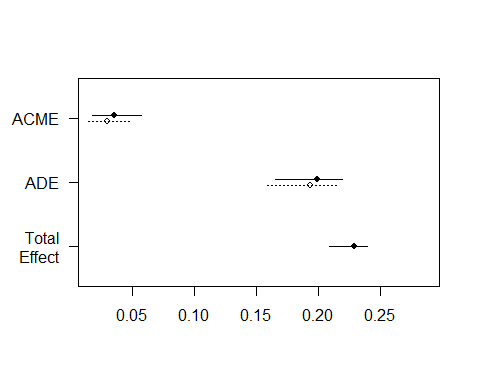
##   
## Causal Mediation Analysis   
##   
## Nonparametric Bootstrap Confidence Intervals with the Percentile Method  
##   
## Estimate 95% CI Lower 95% CI Upper p-value   
## ACME 0.0800 0.0414 0.13 <2e-16 \*\*\*  
## ADE 0.4151 0.3040 0.53 <2e-16 \*\*\*  
## Total Effect 0.4951 0.3931 0.61 <2e-16 \*\*\*  
## Prop. Mediated 0.1615 0.0822 0.27 <2e-16 \*\*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Sample Size Used: 269   
##   
##   
## Simulations: 1000



## Normal and Gamma

## Running nonparametric bootstrap

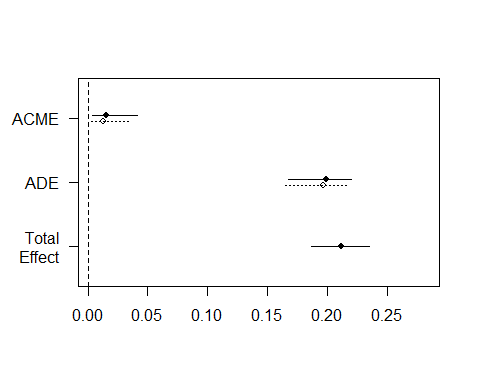
##   
## Causal Mediation Analysis   
##   
## Nonparametric Bootstrap Confidence Intervals with the Percentile Method  
##   
## Estimate 95% CI Lower 95% CI Upper p-value   
## ACME (control) 0.0299 0.0143 0.05 <2e-16 \*\*\*  
## ACME (treated) 0.0354 0.0173 0.06 <2e-16 \*\*\*  
## ADE (control) 0.1939 0.1588 0.22 <2e-16 \*\*\*  
## ADE (treated) 0.1993 0.1653 0.22 <2e-16 \*\*\*  
## Total Effect 0.2292 0.2090 0.24 <2e-16 \*\*\*  
## Prop. Mediated (control) 0.1304 0.0625 0.23 <2e-16 \*\*\*  
## Prop. Mediated (treated) 0.1542 0.0755 0.26 <2e-16 \*\*\*  
## ACME (average) 0.0326 0.0157 0.05 <2e-16 \*\*\*  
## ADE (average) 0.1966 0.1621 0.22 <2e-16 \*\*\*  
## Prop. Mediated (average) 0.1423 0.0693 0.24 <2e-16 \*\*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Sample Size Used: 269   
##   
##   
## Simulations: 1000



## Poisson and Gamma

## Running nonparametric bootstrap

##   
## Causal Mediation Analysis   
##   
## Nonparametric Bootstrap Confidence Intervals with the Percentile Method  
##   
## Estimate 95% CI Lower 95% CI Upper p-value   
## ACME (control) 0.01279 0.00269 0.03 0.016 \*   
## ACME (treated) 0.01512 0.00325 0.04 0.016 \*   
## ADE (control) 0.19685 0.16514 0.22 <2e-16 \*\*\*  
## ADE (treated) 0.19918 0.16779 0.22 <2e-16 \*\*\*  
## Total Effect 0.21197 0.18714 0.24 <2e-16 \*\*\*  
## Prop. Mediated (control) 0.06034 0.01282 0.16 0.016 \*   
## Prop. Mediated (treated) 0.07135 0.01520 0.19 0.016 \*   
## ACME (average) 0.01396 0.00297 0.04 0.016 \*   
## ADE (average) 0.19802 0.16643 0.22 <2e-16 \*\*\*  
## Prop. Mediated (average) 0.06585 0.01414 0.18 0.016 \*   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Sample Size Used: 269   
##   
##   
## Simulations: 1000



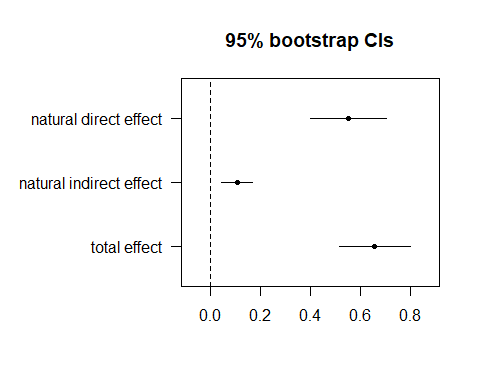
### Mediation Analysis: MedFlex Package

## Linearity Assumption

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## Natural effect model  
## with standard errors based on the non-parametric bootstrap  
## ---  
## Exposure: PPT\_stndzd   
## Mediator(s): NDI\_stndzd   
## ---  
## Parameter estimates:  
## Estimate Std. Error z value Pr(>|z|)   
## (Intercept) 3.663290 0.284637 12.870 < 2e-16 \*\*\*  
## PPT\_stndzd0 0.552627 0.077296 7.149 8.71e-13 \*\*\*  
## PPT\_stndzd1 0.106433 0.031395 3.390 0.000699 \*\*\*  
## Age54 -0.009785 0.008173 -1.197 0.231229   
## education.2lvlCollege Degree 0.185952 0.151779 1.225 0.220520   
## Income68.5lvl$25k - <$50k -0.025304 0.198421 -0.128 0.898524   
## Income68.5lvl$50k - <$75k 0.038849 0.211699 0.184 0.854398   
## Income68.5lvl$75k - <$100k 0.379643 0.228469 1.662 0.096576 .   
## Income68.5lvl>=$100k -0.006811 0.252710 -0.027 0.978497   
## sex.mfMale 0.212478 0.167588 1.268 0.204848   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

## Effect decomposition on the scale of the linear predictor  
## conditional on: Age54, education.2lvl, Income68.5lvl, sex.mf   
## with x\* = 0, x = 1



## 95% LCL 95% UCL  
## (Intercept) 38.9894211 22.3409862 68.181903  
## PPT\_stndzd0 1.7378118 1.4936990 2.022333  
## PPT\_stndzd1 1.1123030 1.0451694 1.182045  
## Age54 0.9902625 0.9746300 1.006362  
## education.2lvlCollege Degree 1.2043639 0.8941756 1.621108  
## Income68.5lvl$25k - <$50k 0.9750136 0.6639661 1.445234  
## Income68.5lvl$50k - <$75k 1.0396133 0.6861484 1.573312  
## Income68.5lvl$75k - <$100k 1.4617625 0.9404168 2.302851  
## Income68.5lvl>=$100k 0.9932119 0.6013811 1.619434  
## sex.mfMale 1.2367394 0.8826830 1.702580

## Effect decomposition on the scale of the linear predictor  
## with standard errors based on the non-parametric bootstrap  
## ---  
## conditional on: Age54, education.2lvl, Income68.5lvl, sex.mf   
## with x\* = 0, x = 1   
## ---  
## Estimate Std. Error z value Pr(>|z|)   
## natural direct effect 0.55263 0.07730 7.149 8.71e-13 \*\*\*  
## natural indirect effect 0.10643 0.03140 3.390 0.000699 \*\*\*  
## total effect 0.65906 0.07246 9.095 < 2e-16 \*\*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
## (Univariate p-values reported)

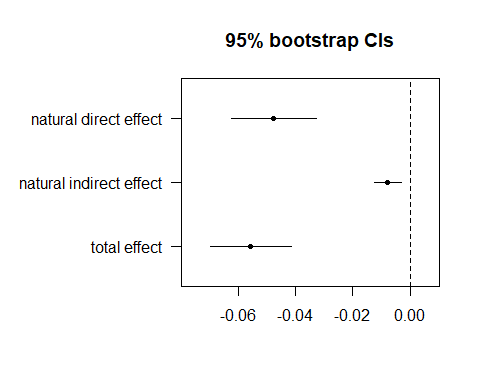
## Gamma Outcome Model

## id PPT\_stndzd0 PPT\_stndzd1 Age54 ParentProbTech TAM NumDevInt  
## 1 3 -1.2260718 1.1998679 23 5.333333 3.230459 6  
## 2 3 -0.1927813 1.1998679 23 5.333333 3.838041 6  
## 3 3 0.3970991 1.1998679 23 5.333333 4.299699 6  
## 4 3 0.9869795 1.1998679 23 5.333333 4.887604 6  
## 5 3 2.0202701 1.1998679 23 5.333333 6.426931 6  
## 6 6 -1.5752988 -0.3025269 23 3.333333 2.638274 2  
## cens.reg sex.mf race4.lvl education.3lvl Income68.5lvl numberchild.2lvl  
## 1 Northeast Female Black College Degree <$25k 1  
## 2 Northeast Female Black College Degree <$25k 1  
## 3 Northeast Female Black College Degree <$25k 1  
## 4 Northeast Female Black College Degree <$25k 1  
## 5 Northeast Female Black College Degree <$25k 1  
## 6 West Male White Some College $25k - <$50k 1  
## language.2lvl education.2lvl NDI\_stndzd  
## 1 English College Degree 1.4220942  
## 2 English College Degree 1.4220942  
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## 5 English College Degree 1.4220942  
## 6 English No C. Degree -0.5026522

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## Natural effect model  
## with standard errors based on the non-parametric bootstrap  
## ---  
## Exposure: PPT\_stndzd   
## Mediator(s): NDI\_stndzd   
## ---  
## Parameter estimates:  
## Estimate Std. Error z value Pr(>|z|)   
## (Intercept) 0.270935 0.024795 10.927 < 2e-16 \*\*\*  
## PPT\_stndzd0 -0.047725 0.007564 -6.309 2.8e-10 \*\*\*  
## PPT\_stndzd1 -0.007878 0.002422 -3.252 0.00115 \*\*   
## Age54 0.001118 0.000755 1.480 0.13878   
## education.2lvlCollege Degree -0.015043 0.011648 -1.292 0.19653   
## Income68.5lvl$25k - <$50k 0.004331 0.017021 0.254 0.79915   
## Income68.5lvl$50k - <$75k -0.001179 0.017422 -0.068 0.94604   
## Income68.5lvl$75k - <$100k -0.030498 0.016814 -1.814 0.06971 .   
## Income68.5lvl>=$100k 0.005051 0.019449 0.260 0.79509   
## sex.mfMale -0.011214 0.011952 -0.938 0.34810   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

## Effect decomposition on the scale of the linear predictor  
## conditional on: Age54, education.2lvl, Income68.5lvl, sex.mf   
## with x\* = 0, x = 1



## 95% LCL 95% UCL  
## (Intercept) 1.3111893 1.2492796 1.3767966  
## PPT\_stndzd0 0.9533956 0.9394724 0.9677458  
## PPT\_stndzd1 0.9921529 0.9874775 0.9968989  
## Age54 1.0011184 0.9996063 1.0025692  
## education.2lvlCollege Degree 0.9850692 0.9623339 1.0072917  
## Income68.5lvl$25k - <$50k 1.0043403 0.9715087 1.0385392  
## Income68.5lvl$50k - <$75k 0.9988216 0.9658551 1.0341221  
## Income68.5lvl$75k - <$100k 0.9699624 0.9397065 1.0037305  
## Income68.5lvl>=$100k 1.0050639 0.9672235 1.0438466  
## sex.mfMale 0.9888482 0.9655156 1.0118275

## Effect decomposition on the scale of the linear predictor  
## with standard errors based on the non-parametric bootstrap  
## ---  
## conditional on: Age54, education.2lvl, Income68.5lvl, sex.mf   
## with x\* = 0, x = 1   
## ---  
## Estimate Std. Error z value Pr(>|z|)   
## natural direct effect -0.047725 0.007564 -6.309 2.80e-10 \*\*\*  
## natural indirect effect -0.007878 0.002422 -3.252 0.00115 \*\*   
## total effect -0.055603 0.007204 -7.719 1.18e-14 \*\*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
## (Univariate p-values reported)