Robustness check

In this study, we used bivariate logistic regressions and multiple linear regressions to check the Robustness.

1. Influencing factors of NCDs

The f bivariate logistic regressions was to analyze the effects of individual annual income, education, occupation, medical insurance, smoking, self-reported health and interaction of these factors on NCDs (Table 1).

Table 1 The effects of individual annual income, education, occupation, medical insurance, smoking and self-reported health and interaction on NCDs by bivariate logistic regression

Independent Variable	B	SE	*P*
Model 1			
Self-reported health	-0.070	0.001	<0.001
Smoking	0.271	0.062	<0.001
Education	-0.449	0.018	<0.001
Individual annual income	0.207	0.009	<0.001
Occupation	0.085	0.014	<0.001
Medical Insurance	0.354	0.026	<0.001
Model 2			
self-reported health	-0.070	0.001	<0.001
Smoking	-0.198	0.165	>0.05
Education	-0.458	0.018	<0.001
Individual annual income	0.207	0.009	<0.001
Occupation	0.085	0.014	<0.001
Medical Insurance	0.355	0.026	<0.001
Education*smoking	0.278	0.090	<0.01
Model 3			
self-reported health	-0.058	0.002	<0.001
Smoking	0.273	0.062	<0.001
Education	-0.448	0.018	<0.001
Individual annual income	0.491	0.042	<0.001
Occupation	0.084	0.014	<0.001
Medical Insurance	0.352	0.026	<0.001
Individual annual income* self-reported health	-0.004	0.001	<0.001

Note: The dependent variable was NCDs with 0=did not suffer NCDs and 1=suffered NCDs.

Continued:

Independent Variable	B	SE	*P*
Model 4			
Self-reported health	-0.081	0.003	<0.001
Smoking	0.267	0.062	<0.001
Education	-0.450	0.018	<0.001
Individual annual income	0.207	0.009	<0.001
Occupation	0.085	0.014	<0.001
Medical Insurance	-0.025	0.117	>0.05
Medical Insurance * Self-reported health	0.005	0.002	0.001
Model 5			
Self-reported health	-0.069	0.001	<0.001
Smoking	0.267	0.062	<0.001
Education	-0.587	0.025	<0.001
Individual annual income	0.161	0.011	<0.001
Occupation	-0.044	0.022	>0.05
Medical Insurance	0.331	0.026	<0.001
Occupation * Education* Individual annual income	0.013	0.002	<0.001
Model 6			
Self-reported health	-0.070	0.001	<0.001
Smoking	0.161	0.081	<0.05
Education	-0.451	0.018	<0.001
Individual annual income	0.206	0.009	<0.001
Occupation	0.083	0.014	<0.001
Medical Insurance	0.354	0.026	<0.001
Education*Occupation * Individual annual income*smoking	0.008	0.004	<0.05

Note: The dependent variable was NCDs with 0=did not suffer NCDs and 1=suffered NCDs.

As table 1 showed that all of factors were relation with NCDs, and education and self-reported health were protective factors for NCDs, others were risk. Furthermore, five interactions were examined significantly. The results were consistent with SEM.

2. Influencing factors of self-reported health

The multiple linear regressions was to analyze the effects of individual annual income, education, occupation, medical insurance, smoking on self-reported health (Table 2).

Table 2 The effects of individual annual income, education, occupation, medical insurance, smoking on self-reported health by multiple linear regression

Independent Variable	B	β	P
Individual annual income	0.280	0.028	0.000
Education	5.161	0.277	0.000
Occupation	-0.400	-0.028	0.000
Medical insurance	-2.786	-0.105	0.000
Smoking	-4.575	-0.051	0.000

Note: "B" was unstandardized regression coefficient; "β" was standardized regression coefficient.

As table 2 showed that effects of individual annual income, education, occupation, medical insurance, smoking were significant. Individual annual income and education had positive correlation to self-reported health, and others had negative correlation with self-reported health. The results were consistent with SEM, too.