

Table S1 The crude associations between one's chronic conditions and the disease status of their own household members - Scene 1 (N = 27,010)

Exposure: chronic condition status of any other household members.	Any chronic conditions		Hypertension		Diabetes		IHD		CVD		Obesity	
	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P
Any chronic conditions	2.26 (2.26-3.81)	<.0001	2.89 (2.69-3.10)	<.0001	1.49 (1.35-1.66)	<.0001	1.34 (1.09-1.65)	0.0050	1.35 (1.09-1.67)	0.0059	1.30 (1.09-1.54)	0.0029
Hypertension	1.96 (1.07-3.57)	0.0282	1.65 (1.52-1.78)	<.0001	1.40 (1.27-1.55)	<.0001	1.51 (1.24-1.83)	<.0001	1.06 (1.32-0.86)	0.5683	1.02 (0.86-1.21)	0.8048
Diabetes	1.36 (1.24-1.48)	<.0001	1.14 (1.05-1.25)	0.0031	1.73 (1.45-2.08)	<.0001	1.23 (0.93-1.63)	0.1493	1.29 (0.96-1.74)	0.0910	1.44 (1.15-1.80)	0.0015
IHD	1.40 (1.19-1.65)	<.0001	1.40 (1.19-1.65)	<.0001	1.19 (0.88-1.59)	0.2568	7.35 (5.04-10.72)	<.0001	2.06 (1.30-3.25)	0.0019	0.89 (0.54-1.47)	0.6472
CVD	1.20 (1.01-1.43)	0.0422	1.08 (0.89-1.29)	0.4362	1.25 (0.95-1.66)	0.1133	1.98 (1.26-3.13)	0.0032	4.45 (2.66-7.44)	<.0001	0.61 (0.31-1.18)	0.1400
Obesity	1.22 (1.06-1.41)	0.0071	0.96 (0.83-1.11)	0.5997	1.32 (1.07-1.64)	0.0104	0.82 (0.50-1.36)	0.4434	0.58 (0.30-1.12)	0.1056	3.43 (2.36-4.98)	<.0001

Note:

The chronic conditions on the top of table represented the status of participants. The chronic conditions on the left of the table represented the status of any other household members.

Table S2 The adjusted associations of subgroup analyses in all adult household members

Exposure: chronic condition status of any other household members.	Any chronic conditions		Hypertension		Diabetes		IHD		CVD		Obesity	
	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P
<b>Male</b>												
Any chronic conditions	1.39 (1.27-1.53)	<.0001	1.44 (1.31-1.57)	<.0001	1.22 (1.07-1.41)	0.0044	1.14 (0.85-1.53)	0.3852	1.14 (0.84-1.56)	0.4038	1.10 (0.87-1.39)	0.4386
Hypertension	1.38 (1.26-1.26)	<.0001	1.46 (1.33-1.60)	<.0001	1.21 (1.05-1.39)	0.0070	1.04 (0.78-1.38)	0.8069	0.88 (0.64-1.19)	0.4061	1.03 (0.81-1.30)	0.8218
Diabetes	1.47 (1.28-1.67)	<.0001	1.31 (1.15-1.50)	<.0001	1.74 (1.43-2.10)	<.0001	1.18 (0.78-1.77)	0.4359	1.33 (0.88-2.03)	0.1776	1.51 (1.09-2.09)	0.0123
IHD	1.12 (0.87-1.43)	0.3866	1.12 (0.87-1.45)	0.3700	0.93 (0.63-1.39)	0.7375	5.49 (3.60-8.36)	<.0001	1.45 (0.74-2.86)	0.2764	0.70 (0.32-1.55)	0.3791
CVD	0.93 (0.70-1.24)	0.6254	0.80 (0.59-1.08)	0.1487	0.94 (0.61-1.46)	0.7936	1.64 (0.84-3.22)	0.1484	3.48 (2.03-5.99)	<.0001	0.73 (0.30-1.73)	0.4709
Obesity	1.47 (1.18-1.82)	0.0005	1.31 (1.06-1.61)	0.0115	1.27 (0.93-1.74)	0.1271	1.04 (0.52-2.07)	0.9131	0.87 (0.40-1.93)	0.7368	5.09 (3.67-7.07)	<.0001
<b>Female</b>												
Any chronic conditions	1.49 (1.36-1.63)	<.0001	1.49 (1.36-1.63)	<.0001	1.39 (1.21-1.60)	<.0001	1.31 (1.01-1.71)	0.0453	0.91 (0.68-1.22)	0.5335	1.36 (1.08-1.71)	0.0101
Hypertension	1.49 (1.36-1.62)	<.0001	1.59 (1.45-1.74)	<.0001	1.26 (1.10-1.45)	0.0011	1.32 (1.02-1.71)	0.0365	0.86 (0.64-1.15)	0.3052	1.15 (0.92-1.45)	0.2201

Exposure: chronic condition status of any other household members.	Any chronic conditions		Hypertension		Diabetes		IHD		CVD		Obesity	
	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P
Diabetes	1.28 (1.12-1.46)	0.0002	1.28 (1.12-1.46)	0.0003	1.76 (1.45-2.13)	<.0001	0.95 (0.65-1.40)	0.8038	0.95 (0.60-1.49)	0.8158	1.32 (0.96-1.81)	0.0902
IHD	1.06 (0.82-1.36)	0.6716	1.01 (0.78-1.31)	0.9455	1.09 (0.75-1.59)	0.6389	5.72 (3.81-8.58)	<.0001	1.47 (0.75-2.87)	0.2645	1.03 (0.52-2.01)	0.9400
CVD	0.97 (0.74-1.26)	0.8189	0.83 (0.63-1.09)	0.1782	1.16 (0.77-1.75)	0.4648	1.43 (0.72-2.82)	0.3023	3.64 (2.19-6.08)	<.0001	0.52 (0.19-1.39)	0.1907
Obesity	1.13 (0.90-1.42)	0.2994	1.00 (0.79-1.27)	0.9974	1.52 (1.11-2.09)	0.0100	0.65 (0.28-1.50)	0.3101	0.27 (0.06-1.11)	0.0699	3.61 (2.48-5.26)	<.0001
<b>Illiteracy/Primary</b>												
Any chronic conditions	2.29 (2.00-2.63)	<.0001	1.50 (1.31-1.71)	<.0001	1.16 (0.97-1.38)	0.1064	0.95 (0.68-1.34)	0.7815	0.95 (0.70-1.29)	0.7388	1.19 (0.85-1.67)	0.3038
Hypertension	1.77 (1.55-2.01)	<.0001	2.55 (2.22-2.92)	<.0001	1.12 (0.94-1.33)	0.2053	0.97 (0.70-1.35)	0.8688	0.99 (0.74-1.34)	0.9727	1.00 (0.72-1.38)	0.9855
Diabetes	1.20 (1.00-1.43)	0.0445	1.22 (1.03-1.44)	0.0229	1.79 (1.35-2.38)	<.0001	0.70 (0.40-1.24)	0.2242	0.77 (0.48-1.26)	0.3011	1.18 (0.72-1.93)	0.5080
IHD	1.05 (0.74-1.48)	0.7975	0.97 (0.70-1.36)	0.8720	0.86 (0.48-1.54)	0.6177	6.74 (3.64-12.46)	<.0001	2.03 (1.05-3.92)	0.0360	1.26 (0.48-3.36)	0.6389
CVD	0.94 (0.68-1.29)	0.6994	0.85 (0.62-1.17)	0.3135	0.83 (0.50-1.39)	0.4814	1.86 (0.91-3.80)	0.0883	2.73 (1.32-5.64)	0.0066	1.17 (0.49-2.81)	0.7180

Exposure: chronic condition status of any other household members.	Any chronic conditions		Hypertension		Diabetes		IHD		CVD		Obesity	
	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P
Obesity	1.20 (0.91-1.58)	0.2047	1.07 (0.81-1.40)	0.6397	1.46 (1.01-2.13)	0.0450	1.02 (0.45-2.32)	0.9649	0.62 (0.25-1.54)	0.3065	3.78 (2.04-7.01)	<.0001
<b>Secondary</b>												
Any chronic conditions	1.45 (1.32-1.60)	<.0001	1.43 (1.29-1.58)	<.0001	1.37 (1.20-1.58)	<.0001	1.36 (1.02-1.83)	0.0349	0.97 (0.69-1.37)	0.8698	0.98 (0.78-1.24)	0.8892
Hypertension	1.34 (1.22-1.48)	<.0001	1.91 (1.72-2.11)	<.0001	1.32 (1.16-1.51)	<.0001	1.37 (1.03-1.81)	0.0287	0.76 (0.53-1.08)	0.1227	1.00 (0.80-1.25)	0.9899
Diabetes	1.19 (1.04-1.36)	0.0090	1.29 (1.13-1.46)	0.0001	1.67 (1.34-2.08)	<.0001	1.28 (0.87-1.90)	0.2140	1.61 (1.02-2.53)	0.0395	1.40 (1.03-1.90)	0.0331
IHD	1.05 (0.82-1.33)	0.7096	1.11 (0.86-1.42)	0.4324	0.95 (0.65-1.39)	0.7949	6.06 (3.68-9.97)	<.0001	0.81 (0.32-2.06)	0.6626	0.51 (0.21-1.20)	0.1231
CVD	0.93 (0.70-1.22)	0.5950	0.83 (0.62-1.12)	0.2354	1.33 (0.90-1.96)	0.1528	0.81 (0.32-2.04)	0.6586	3.90 (1.99-7.63)	<.0001	0.24 (0.06-0.98)	0.0467
Obesity	1.32 (1.06-1.64)	0.0132	1.14 (0.92-1.41)	0.2223	1.28 (0.95-1.71)	0.1041	0.73 (0.34-1.57)	0.4245	0.67 (0.24-1.86)	0.4398	3.05 (1.94-4.79)	<.0001
<b>Collage</b>												
Any chronic conditions	1.69 (1.39-2.05)	<.0001	1.55 (1.25-1.91)	<.0001	1.14 (0.83-1.58)	0.4111	1.05 (0.63-1.75)	0.8497	1.12 (0.56-2.23)	0.7439	1.82 (1.25-2.67)	0.0003

Exposure: chronic condition status of any other household members.	Any chronic conditions		Hypertension		Diabetes		IHD		CVD		Obesity	
	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P
Hypertension	1.43 (1.19-1.73)	0.0002	1.64 (1.32-2.04)	<.0001	1.17 (0.85-1.61)	0.3432	0.93 (0.56-1.53)	0.7628	0.67 (0.33-1.36)	0.2673	1.62 (1.12-2.33)	0.0103
Diabetes	1.70 (1.33-2.16)	<.0001	1.60 (1.22-2.09)	0.0007	1.48 (0.91-2.42)	0.1169	1.23 (0.63-2.41)	0.5452	1.22 (0.51-2.93)	0.6546	1.69 (1.08-2.65)	0.0220
IHD	1.14 (0.75-1.73)	0.5444	1.02 (0.64-1.63)	0.9371	1.28 (0.69-2.39)	0.4309	2.41 (0.98-5.96)	0.0557	1.68 (0.58-4.87)	0.3376	1.58 (0.67-3.70)	0.2928
CVD	1.20 (0.69-2.09)	0.5079	0.72 (0.37-1.39)	0.3256	0.57 (0.20-1.62)	0.2923	2.32 (0.85-6.28)	0.0988	10.19 (3.52-29.46)	<.0001	0.88 (0.21-3.64)	0.8569
Obesity	2.34 (1.52-3.60)	0.0001	1.51 (0.94-2.42)	0.0848	1.70 (0.78-3.71)	0.1829	0.83 (0.18-3.93)	0.8179	-	-	4.93 (2.72-8.93)	<0.0001

## Note:

The chronic conditions on the top of table represented the status of participants. The chronic conditions on the left of the table represented the status of any other household members. The generalized estimating equations (GEE) model was adjusted for age, gender, health insurance status, education status, marriage status, drinking and smoking. The adjusted GEE model was not fit for estimate the association between CVD and obesity in the “Collage” subgroup.

Table S3 The crude associations of chronic conditions between children and their own parents - Scene 2 (N = 5,489 dyads)

Exposure: chronic condition status of parents	Any chronic conditions		Hypertension		Diabetes		Obesity	
	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P
Any chronic conditions	5.85(4.83-7.09)	<.0001	6.60(5.25-8.28)	<.0001	6.36(3.98-10.18)	<.0001	2.91(2.01-4.20)	<.0001
Hypertension	4.52(3.77-5.41)	<.0001	7.14(5.73-8.90)	<.0001	3.32(2.24-4.90)	<.0001	1.61(1.13-2.29)	0.0085
Diabetes	2.26(1.78-2.87)	<.0001	1.75(1.27-2.41)	0.0007	11.28(7.65-16.62)	<.0001	1.57(0.93-2.67)	0.0941
Obesity	3.09(2.07-4.60)	<.0001	0.82(0.39-1.73)	0.6037	1.98(0.79-4.94)	0.1449	14.88(9.35-23.68)	<.0001

Note:

The chronic conditions on the top of table represented the status of children. The chronic conditions on the left of the table represented the status of their parents. The analyses of IHD and CVD were not conducted because of low prevalence rate in this subset.

Table S4 The crude associations of chronic conditions between wife and their own husband - Scene 3 (N = 7,844 spouses)

Exposure: chronic condition status of any other household members.	Any chronic conditions		Hypertension		Diabetes		IHD		CVD		Obesity	
	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P
Any chronic conditions	2.88 (2.61-3.18)	<.0001	2.80 (2.53-3.10)	<.0001	2.35 (1.96-2.82)	<.0001	3.41 (2.32-5.02)	<.0001	1.82 (1.24-2.67)	0.0022	1.65 (1.20-2.26)	0.0020
Hypertension	2.91 (2.63-3.22)	<.0001	2.94 (2.65-3.26)	<.0001	2.31 (1.93-2.78)	<.0001	3.30 (2.27-4.80)	<.0001	1.62 (1.10-2.38)	0.0147	1.39 (1.01-1.93)	0.0453
Diabetes	2.09 (1.78-2.46)	<.0001	1.97 (1.67-2.33)	<.0001	2.12 (1.64-2.75)	<.0001	2.51 (1.55-4.05)	0.0002	0.92 (0.44-1.89)	0.8143	1.20 (0.70-2.06)	0.5082
IHD	2.84 (2.01-4.01)	<.0001	2.54 (1.80-3.59)	<.0001	2.38 (1.44-3.95)	0.0008	18.21 (11.18-29.63)	<.0001	5.01 (2.39-10.53)	<.0001	1.55 (0.57-4.26)	0.3911
CVD	2.91 (2.01-4.19)	<.0001	2.18 (1.51-3.15)	<.0001	2.02 (1.15-3.55)	0.0150	3.68 (1.58-8.53)	0.0025	10.16 (5.51-18.73)	<.0001	1.75 (0.64-4.80)	0.2782
Obesity	1.02 (0.74-1.39)	0.9177	0.73 (0.51-1.04)	0.0822	1.42 (0.84-2.38)	0.1863	0.72 (0.18-2.94)	0.6484	0.39 (0.05-2.83)	0.3542	4.72 (2.7108.22)	<.0001

Note:

The chronic conditions on the top of table represented the status of wives. The chronic conditions on the left of the table represented the status of their husband.

Table S5 The results of full models for the association between chronic conditions of individual with the same condition of household member

Factors	Subsample1		Subsample2		Subsample3	
	OR(95%CI)	P	OR(95%CI)	P	OR(95%CI)	P
<b>Any chronic conditions</b>						
Same condition	3.03(2.81-3.28)	<0.0001	5.13(4.20-6.28)	<0.0001	1.58(1.41-1.77)	<0.0001
Age	1.07(1.07-1.07)	<0.0001	1.08(1.08-1.09)	<0.0001	1.08(1.07-1.08)	<0.0001
Sex						
Female	Ref		Ref		-	-
Male	1.16(1.07-1.26)	0.0002	1.48(1.17-1.88)	0.0010	-	-
Health insurance status						
Insuranced	Ref		Ref		Ref	
No insuranced	0.82(0.74-0.91)	0.0001	1.02(0.62-1.68)	0.9319	1.08(0.78-1.49)	0.6577
Education status						
Illieracy/Primary	Ref					
Seconary	1.22(1.11-1.34)	<0.0001	1.54(1.07-2.21)	0.0204	1.91(1.54-2.37)	<0.0001
Collage	1.34(1.23-1.45)	<0.0001	1.44(1.13-1.83)	0.0028	1.74(1.43-2.12)	<0.0001
Smoking	1.00(0.91-1.09)	0.9306	1.19(0.92-1.53)	0.1781	1.01(0.70-1.48)	0.9386
Drinking	0.85(0.78-0.93)	0.0002	0.89(0.70-1.13)	0.3515	1.20(0.85-1.70)	0.3001
<b>Hypertension</b>						
Same condition	3.26(3.02-3.52)	<0.0001	6.29(4.92-8.05)	<0.0001	1.63(1.45-1.84)	<0.0001
Age	1.07(1.07-1.07)	<0.0001	1.12(1.11-1.13)	<0.0001	1.08(1.07-1.08)	<0.0001
Sex						
Female	Ref		Ref		-	-
Male	1.10(1.01-1.20)	0.0247	1.26(0.94-1.70)	0.1247	-	-
Health insurance status						
Insuranced	Ref		Ref		Ref	
No insuranced	0.98(0.87-1.11)	0.7680	0.73(0.39-1.37)	0.3310	0.98(0.70-1.37)	0.9004
Education status						
Illieracy/Primary	Ref		Ref		Ref	
Seconary	1.32(1.20-1.45)	<0.0001	1.56(1.01-2.41)	0.0435	1.92(1.53-2.40)	<0.0001
Collage	1.39(1.28-1.51)	<0.0001	1.50(1.10-2.03)	0.0093	1.76(1.42-2.17)	<0.0001
Smoking	1.03(0.94-1.13)	0.5309	1.13(0.84-1.53)	0.4109	1.11(0.75-1.65)	0.6052
Drinking	0.77(0.70-0.84)	<0.0001	0.71(0.54-0.94)	0.0166	1.22(0.85-1.75)	0.2834
<b>Diabetes</b>						
Same condition	1.68(1.40-2.01)	<0.0001	11.56(7.88-16.98)	<0.0001	1.57(1.21-2.03)	0.0007
Age	1.05(1.04-1.06)	<0.0001	1.08(1.06-1.10)	<0.0001	1.05(1.05-1.06)	<0.0001
Sex						
Female	Ref		Ref		-	-
Male	1.05(0.91-1.20)	0.5013	1.45(0.88-2.37)	0.1409	-	-
Health insurance status						
Insuranced	Ref		Ref			



No insured	0.29(0.06-1.48)	0.1362	0.94(0.30-2.93)	0.9158	0.86(0.46-1.59)	0.6258
Education status						
Illiteracy/Primary	Ref		Ref		Ref	
Secondary	1.00(0.79-1.27)	0.9867	2.34(1.04-5.27)	0.0410	2.23(1.41-3.53)	0.0006
Collage	1.35(1.17-1.55)	<0.0001	2.66(1.45-4.87)	0.0016	2.15(1.40-3.31)	0.0005
Smoking	0.84(0.73-0.96)	0.0130	1.17(0.73-1.89)	0.5071	0.72(0.41-1.29)	0.2728
Drinking	1.12(0.98-1.29)	0.0943	1.11(0.69-1.79)	0.6780	1.32(0.69-2.53)	0.4069
IHD						
Same condition	5.31(3.56-7.92)	<0.0001	-	-	6.58(3.78-11.43)	<0.0001
Age	1.06(1.05-1.07)	<0.0001	-	-	1.11(1.09-1.12)	<0.0001
Sex						
Female	Ref		Ref		-	-
Male	0.85(0.64-1.12)	0.2523	-	-	-	-
Health insurance status						
Insured	Ref		Ref		Ref	
No insured	0.52(0.16-1.69)	0.2753	-	-	1.39(0.41-4.73)	0.5993
Education status						
Illiteracy/Primary	Ref					
Secondary	0.60(0.43-0.84)	0.0025	-	-	0.39(0.20-0.78)	0.0072
Collage	0.87(0.70-1.10)	0.2495	-	-	0.88(0.47-1.65)	0.6853
Smoking	1.10(0.83-1.46)	0.5087	-	-	2.16(0.28-16.40)	0.4584
Drinking	1.09(0.81-1.46)	0.5672	-	-	0.42(0.18-0.98)	0.0458
CVD						
Same condition	3.40(1.99-5.80)	<0.0001	-	-	3.62(1.86-7.07)	0.0002
Age	1.08(1.07-1.09)	<0.0001	-	-	1.10(1.08-1.12)	<0.0001
Sex						
Female	Ref		Ref		-	-
Male	1.20(0.94-1.54)	0.1491	-	-	-	-
Health insurance status						
Insured	Ref		Ref		Ref	
No insured	0.73(0.38-1.40)	0.3380	-	-	1.23(0.35-4.31)	0.7483
Education status						
Illiteracy/Primary	Ref		Ref		Ref	
Secondary	1.59(1.13-2.24)	0.0072	-	-	1.25(0.55-2.81)	0.5940
Collage	1.24(0.90-1.72)	0.1899	-	-	1.15(0.51-2.60)	0.7410
Smoking	1.34(0.97-1.84)	0.0781	-	-	1.61(0.21-12.13)	0.6429
Drinking	1.32(0.96-1.80)	0.0867	-	-	2.57(0.34-19.52)	0.3603
Obesity						
Same condition	3.41(2.34-4.96)	<0.0001	13.85(8.54-22.46)	<0.0001	5.09(2.92-8.86)	<0.0001
Age	1.01(1.00-1.02)	0.0462	1.00(0.98-1.02)	0.8932	1.02(1.01-1.04)	0.0015
Sex						
Female	Ref		Ref		-	-
Male	1.08(0.88-1.33)	0.4682	2.04(1.31-3.17)	0.0017	-	-

Health insurance status						
Insuranced	Ref		Ref		Ref	
No insuranced	0.37(0.06-2.09)	0.2588	1.18(0.55-2.53)	0.6670	1.56(0.72-3.41)	0.2630
Education status						
Illieracy/Primary	Ref		Ref		Ref	
Seconary	0.87(0.56-1.35)	0.5298	1.08(0.44-2.64)	0.8624	2.06(0.98-4.32)	0.0558
Collage	1.04(0.81-1.34)	0.7469	1.27(0.82-1.98)	0.2858	2.11(1.06-4.20)	0.0339
Smoking	1.11(0.89-1.39)	0.3468	1.14(0.69-1.89)	0.6041	1.22(0.38-3.86)	0.7376
Drinking	1.02(0.82-1.26)	0.8914	1.47(0.83-2.58)	0.1846	0.89(0.37-2.17)	0.8004