Supplementary Material

Supplementary Figure1:

Sex difference in prevalence of each chronic condition.

Supplementary Table 1:

Classification of 18 conditions and the corresponding ICD-10 codes.

Supplementary Table 2a:

Odds ratio of baseline characteristics on poor self-rated health in female and male participants.

Supplementary Table 2b:

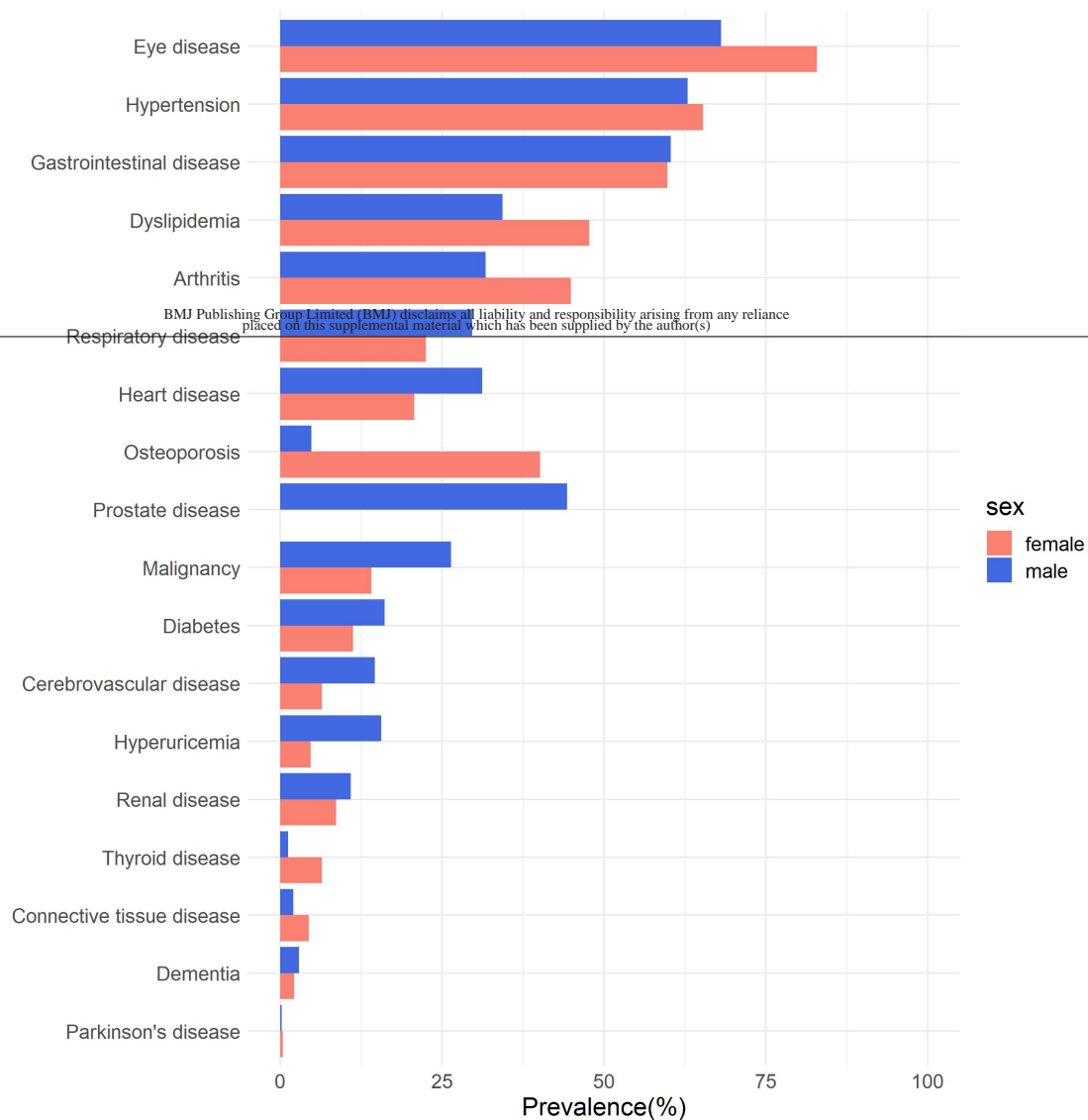Odds ratio of baseline characteristics on low life satisfaction in female and male participants.

Supplementary Table 3a:

Condition specific effect on poor self-rated health in female and male participants.

Supplementary Table 3b:

Condition specific effect on low life satisfaction in female and male participants.

Supplementary Figure 1. Sex difference in prevalence of each chronic condition.

Following conditions showed statistically significant differences between the sexes in the chi-square test: diabetes, dyslipidemia, hyperuricemia, cerebrovascular disease, heart disease, respiratory disease, thyroid disease, connective tissue disease, osteoporosis, arthritis, eye disease and malignancy.

Supplemental material

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Supplementary Table 1. Classification of 18 conditions and the corresponding ICD-10 codes.

Classification	Example	ICD-10 codes
Cerebrovascular disease	Ischemic stroke, intracranial bleeding, transient ischemic attack, subdural hematoma	I60-I69
Cardiac disease	Heart failure, angina, myocardial infarction, atrial fibrillation, valvular disease	I20-I25
Hypertension	Essential hypertension	I10-I15
Diabetes	Type2 diabetes mellitus,	E10-14
Dyslipidemia	Hyperlipidemia, hypertriglycemia	E78
Respiratory disease	Asthma, COPD, Tuberculosis	A15-16, J40-47,J60-7, J80-84,
Gastrointestinal disease	Gastroesophageal reflux disease, gastritis, peptic ulcer disease, hepatitis,	K20-K31, K35-K38, K40-K46, K50-K52, K55-K64, K70-K77, K80-K87, K90-K93,
Renal disease	Chronic kidney disease, End stage renal disease, Nephritis	N00-N08, N10-N16, N17-N19, N25-N29
Prostate disease	Benign prostate hyperplasia	N40-N51
Thyroid disease	Hyperthyroidism(Grave's disease), Hypothyroidism(Hashimoto's disease)	E00-E07
Parkinson's disease		G20-G22
Connective tissue disease	Rheumatoid arthritis, Systemic Lupus Erythematosus,	M05-M14, M30-M36,
Eye disease	Glaucoma, Cataract, Dry eye	H10-H13, H15-H22, H25-H28, H30-H36, H40-H59
Osteoporosis	Postmenopausal osteoporosis	M80-M82
Arthritis	Osteoarthritis	M15-M19
Hyperuricemia	Asymptomatic hyperuricemia, Gout	E79, M10
Malignancy	Any kinds of malignancy	C00-C97
Dementia	Alzheimer's disease, Dementia with Lewy Bodies	F00-F03

Supplementary Table 2a. Odds ratio of baseline characteristics on poor self-rated health in female and male participants.

	Poor Self-rated health							
	female				male			
	unadjusted		adjusted		unadjusted		adjusted	
	OR(95%CI)	P value	OR(95%CI)	P value	OR(95%CI)	P value	OR(95%CI)	P value
Age	0.85(0.69-1.04)	0.115	0.81(0.64-1.04)	0.096	1.00(0.84-1.19)	0.966	0.96(0.78-1.18)	0.714
BMI								
<18.5	1.05(0.42-2.63)	0.913	0.98(0.32-3.03)	0.971	0.98(0.28-3.47)	0.973	1.45(0.35-6.03)	0.610
18-25	Reference		Reference		Reference		Reference	
25≦	0.63(0.32-1.26)	0.195	0.67(0.30-1.49)	0.328	1.01(0.59-1.72)	0.975	0.77(0.41-1.44)	0.413
Current Drinking	0.94(0.50-1.77)	0.838	1.24(0.60-2.55)	0.559	0.69(0.43-1.12)	0.135	0.95(0.54-1.67)	0.853
Current Smoking	3.63(0.65-20.26)	0.141	1.10(0.10-12.77)	0.938	0.86(0.32-2.29)	0.762	0.77(0.25-2.37)	0.646
Education (<12 years)	1.05(0.60-1.85)	0.853	1.43(0.71-2.87)	0.318	1.45(0.90-2.33)	0.128	1.45(0.82-2.55)	0.203
IADL(Dependent)	1.75(0.90-3.43)	0.101	1.52(0.66-3.50)	0.320	2.57(1.41-4.68)	0.002	2.36(1.18-4.75)	0.016
Frailty								
Robust	Reference		Reference		Reference		Reference	
Prefrail	2.64(0.92-7.58)	0.072	3.37(1.06-10.72)	0.040	0.64(0.34-1.22)	0.180	0.51(0.25-1.05)	0.066
Frail	5.13(1.59-16.63)	0.006	5.70(1.52-21.37)	0.010	1.32(0.60-2.90)	0.485	0.70(0.27-1.79)	0.453
GDS								
0-4	Reference		Reference		Reference		Reference	
5-9	3.72(2.10-6.62)	<0.001	3.36(1.71-6.63)	<0.001	1.98(1.16-3.39)	0.013	2.01(1.08-3.75)	0.028
10-15	5.93(1.90-18.52)	0.002	4.20(0.97-18.12)	0.055	6.56(2.73-15.77)	<0.001	9.32(3.02-28.76)	<0.001
Number of chronic conditions								
0-1	Reference		Reference		Reference		Reference	
2	0.18(0.02-2.07)	0.168	0.36(0.03-4.42)	0.425	0.66(0.09-4.94)	0.685	0.71(0.05-9.14)	0.792
3	1.02(0.20-5.19)	0.977	1.64(0.30-9.01)	0.567	0.75(0.13-4.34)	0.751	1.46(0.15-14.03)	0.742
4	1.02(0.20-5.19)	0.977	1.06(0.19-6.04)	0.950	1.43(0.29-7.14)	0.661	2.37(0.27-20.49)	0.433
5	0.87(0.17-4.37)	0.862	1.15(0.20-6.50)	0.872	3.44(0.75-15.71)	0.110	5.27(0.65-42.45)	0.118
6	1.78(0.36-8.80)	0.480	2.69(0.50-14.61)	0.252	5.40(1.17-24.86)	0.030	9.13(1.12-74.41)	0.039
7	4.34(0.88-21.49)	0.072	7.43(1.35-40.93)	0.021	5.30(1.13-25.00)	0.035	7.51(0.90-62.67)	0.062
8	8.17(1.41-47.22)	0.019	12.32(1.90-79.71)	0.008	5.58(0.95-32.59)	0.056	7.72(0.75-79.93)	0.087
9 or more	15.75(2.30-107.93)	0.005	27.86(3.54-218.99)	0.002	16.92(2.79-102.40)	0.002	59.41(5.41-652.67)	0.001

Abbreviations: OR, Odds ratio; CI, Confidence interval; IADL, Instrumental activities of daily living; GDS, Geriatric Depression Scale

Supplementary Table 2b. Odds ratio of baseline characteristics on low life satisfaction in female and male participants.

	Low life satisfaction							
	female				male			
	unadjusted		adjusted		unadjusted		adjusted	
	OR(95%CI)	P value	OR(95%CI)	P value	OR(95%CI)	P value	OR(95%CI)	P value
Age	0.83(0.69-0.99)	0.042	0.82(0.66-1.02)	0.071	1.08(0.92-1.28)	0.344	1.06(0.87-1.27)	0.576
BMI								
<18.5	0.24(0.05-1.01)	0.052	0.10(0.01-0.86)	0.036	2.25(0.83-6.15)	0.112	2.56(0.86-7.64)	0.091
18-25	Reference		Reference		Reference		Reference	
25≦	0.60(0.33-1.12)	0.107	0.70(0.36-1.38)	0.304	0.59(0.33-1.05)	0.072	0.64(0.34-1.21)	0.169
Current Drinking	0.72(0.39-1.33)	0.292	0.77(0.39-1.51)	0.447	1.04(0.65-1.65)	0.882	1.20(0.71-2.04)	0.501
Current Smoking	2.71(0.45-16.49)	0.279	0.25(0.01-6.73)	0.409	2.96(1.38-6.35)	0.005	1.96(0.83-4.63)	0.124
Education (<12 years)	1.03(0.63-1.70)	0.897	1.17(0.64-2.14)	0.602	1.31(0.82-2.08)	0.253	1.12(0.66-1.91)	0.664
IADL(Dependent)	0.76(0.35-1.62)	0.469	1.68(0.71-3.99)	0.240	0.70(0.31-1.54)	0.372	1.66(0.68-4.03)	0.265
Frailty								
Robust	Reference		Reference		Reference		Reference	
Prefrail	1.10(0.55-2.20)	0.779	0.99(0.47-2.09)	0.986	1.42(0.70-2.87)	0.331	1.13(0.52-2.43)	0.764
Frail	1.96(0.81-4.72)	0.135	1.53(0.57-4.12)	0.401	2.04(0.86-4.81)	0.105	1.18(0.44-3.15)	0.737
GDS								
0-4	Reference		Reference		Reference		Reference	
5-9	2.67(1.52-4.67)	0.001	2.45(1.28-4.66)	0.007	3.58(2.11-6.08)	<0.001	3.32(1.86-5.93)	<0.001
10-15	15.04(3.85-58.74)	<0.001	15.48(3.58-66.90)	<0.001	9.31(3.23-26.80)	<0.001	13.27(3.79-46.47)	<0.001
Number of chronic conditions								
0-1	Reference		Reference		Reference		Reference	
2	0.39(0.12-1.30)	0.126	0.46(0.13-1.72)	0.251	1.06(0.26-4.44)	0.931	0.94(0.20-4.45)	0.935
3	0.33(0.10-1.06)	0.063	0.40(0.11-1.42)	0.155	1.44(0.43-4.83)	0.557	1.34(0.36-4.98)	0.659
4	0.48(0.15-1.54)	0.219	0.43(0.12-1.56)	0.202	1.53(0.46-5.07)	0.484	1.46(0.40-5.35)	0.570
5	0.39(0.12-1.21)	0.103	0.34(0.10-1.18)	0.088	2.49(0.78-7.93)	0.122	1.90(0.54-6.64)	0.315
6	0.43(0.13-1.43)	0.167	0.41(0.11-1.55)	0.191	1.62(0.48-5.54)	0.438	1.62(0.43-6.13)	0.475
7	0.51(0.14-1.88)	0.315	0.38(0.09-1.59)	0.184	1.48(0.41-5.37)	0.552	1.28(0.31-5.28)	0.731
8	1.37(0.32-5.88)	0.667	1.62(0.35-7.63)	0.539	1.44(0.28-7.50)	0.667	1.46(0.21-9.99)	0.701
9 or more	1.37(0.23-8.30)	0.728	1.85(0.25-13.83)	0.550	2.16(0.39-11.80)	0.376	3.14(0.45-21.75)	0.246

Abbreviations: OR, Odds ratio; CI, Confidence interval; IADL, Instrumental activities of daily living; GDS, Geriatric Depression Scale

Supplementary Table 3a. Condition specific effect on poor self-rated health in female and male participants.

	Poor Self-rated health							
	Female				Male			
	Unadjusted		Adjusted		Unadjusted		Adjusted	
	OR(95%CI)	P value	OR(95%CI)	P value	OR(95%CI)	P value	OR(95%CI)	P value
Hypertension	1.48(0.82-2.67)	0.195	-	-	1.48(0.88-2.48)	0.136	-	-
Diabetes	1.25(0.56-2.79)	0.586	-	-	1.41(0.77-2.60)	0.267	-	-
Dyslipidemia	1.74(1.02-3.00)	0.044	1.55(0.75-3.19)	0.233	1.73(1.06-2.80)	0.027	1.34(0.73-2.44)	0.342
Hyperuricemia	5.51(2.27-13.39)	<0.001	4.55(1.32-15.74)	0.017	1.25(0.66-2.37)	0.490	-	-
Cerebrovascular disease	2.57(1.10-6.00)	0.029	3.05(1.05-8.85)	0.040	3.68(2.11-6.42)	<0.001	2.90(1.48-5.68)	0.002
Parkinson's disease	NA	NA	-	-	NA	NA	-	-
Dementia	NA	NA	-	-	0.91(0.20-4.15)	0.903	-	-
Heart disease	2.02(1.13-3.62)	0.018	1.91(0.86-4.23)	0.110	1.89(1.16-3.07)	0.011	1.56(0.84-2.90)	0.157
Respiratory disease	1.78(1.00-3.17)	0.052	1.11(0.48-2.56)	0.813	2.77(1.70-4.50)	<0.001	2.73(1.51-4.96)	0.001
Gastrointestinal disease	1.37(0.78-2.39)	0.273	-	-	2.09(1.23-3.57)	0.007	2.00(1.05-3.80)	0.034
Renal disease	2.42(1.13-5.20)	0.024	1.70(0.62-4.67)	0.300	1.62(0.81-3.24)	0.172	-	-
Thyroid disease	2.62(1.12-6.13)	0.026	2.01(0.64-6.28)	0.232	1.04(0.12-9.02)	0.972	-	-
Connective tissue disease	3.62(1.42-9.28)	0.007	2.91(0.73-11.58)	0.129	2.28(0.58-9.01)	0.240	-	-
Osteoporosis	2.16(1.25-3.74)	0.006	1.64(0.82-3.29)	0.165	1.87(0.72-4.87)	0.201	-	-
Arthritis	2.25(1.29-3.90)	0.004	2.14(1.02-4.49)	0.043	2.88(1.77-4.69)	<0.001	2.64(1.50-4.65)	0.001
Eye disease	1.06(0.51-2.18)	0.876	-	-	1.72(0.98-3.02)	0.059	1.66(0.85-3.27)	0.139
Prostate disease	NA	NA	-	-	1.26(0.78-2.02)	0.347	-	-
Malignancy	3.06(1.64-5.69)	<0.001	3.43(1.53-7.68)	0.003	0.84(0.48-1.46)	0.529	-	-

The adjusted models include age, current drinking, current smoking, BMI, IADL, education (high school graduation or higher), frailty and depression.
Abbreviations: BMI, body mass index; IADL, Instrumental activities of daily living

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Supplementary Table 3b. Condition specific effect on low life satisfaction in female and male participants.

	Low life satisfaction							
	Female				Male			
	Unadjusted		Adjusted		Unadjusted		Adjusted	
	OR(95%CI)	P value	OR(95%CI)	P value	OR(95%CI)	P value	OR(95%CI)	P value
Hypertension	1.20(0.72-2.02)	0.488	-		0.77(0.48-1.23)	0.269	-	-
Diabetes	1.02(0.47-2.22)	0.957	-		1.27(0.69-2.34)	0.438	-	-
Dyslipidemia	1.04(0.64-1.70)	0.861	-		0.92(0.56-1.51)	0.747	-	-
Hyperuricemia	2.02(0.73-5.56)	0.173	-		0.91(0.48-1.74)	0.784	-	-
Cerebrovascular disease	1.19(0.46-3.07)	0.716	-		1.20(0.63-2.31)	0.581	-	-
Parkinson's disease	NA	NA	-		NA	NA	-	-
Dementia	0.49(0.06-3.97)	0.503	-		0.42(0.05-3.44)	0.422	-	-
Heart disease	0.87(0.47-1.62)	0.665	-		0.82(0.49-1.36)	0.446	-	-
Respiratory disease	1.20(0.67-2.14)	0.544	-		0.99(0.60-1.64)	0.975	-	-
Gastrointestinal disease	0.78(0.48-1.26)	0.308	-		1.99(1.19-3.30)	0.008	2.01(1.13-3.56)	0.017
Renal disease	1.36(0.59-3.15)	0.472	-		1.03(0.49-2.18)	0.929	-	-
Thyroid disease	2.10(0.94-4.67)	0.070	1.49(0.57-3.92)	0.417	0.89(0.10-8.04)	0.915	-	-
Connective tissue disease	2.76(0.95-8.00)	0.061	2.88(0.62-13.41)	0.177	2.89(0.76-11.00)	0.119	-	-
Osteoporosis	0.94(0.57-1.54)	0.796	-		1.53(0.57-4.06)	0.397	-	-
Arthritis	1.85(1.13-3.03)	0.014	2.04(1.14-3.66)	0.016	1.76(1.09-2.82)	0.020	1.67(0.98-2.82)	0.058
Eye disease	0.54(0.31-0.97)	0.040	0.37(0.19-0.73)	0.004	0.97(0.59-1.59)	0.898	-	-
Prostate disease	NA	NA			1.05(0.66-1.67)	0.825	-	-
Malignancy	1.79(0.94-3.40)	0.074	1.73(0.83-3.58)	0.144	1.10(0.65-1.86)	0.713	-	-

The adjusted models include age, current drinking, current smoking, BMI, IADL, education (high school graduation or higher), frailty and depression.
Abbreviations: BMI, body mass index; IADL, Instrumental activities of daily living