

Figure S1. Geographic distribution of the college students' hometown provinces

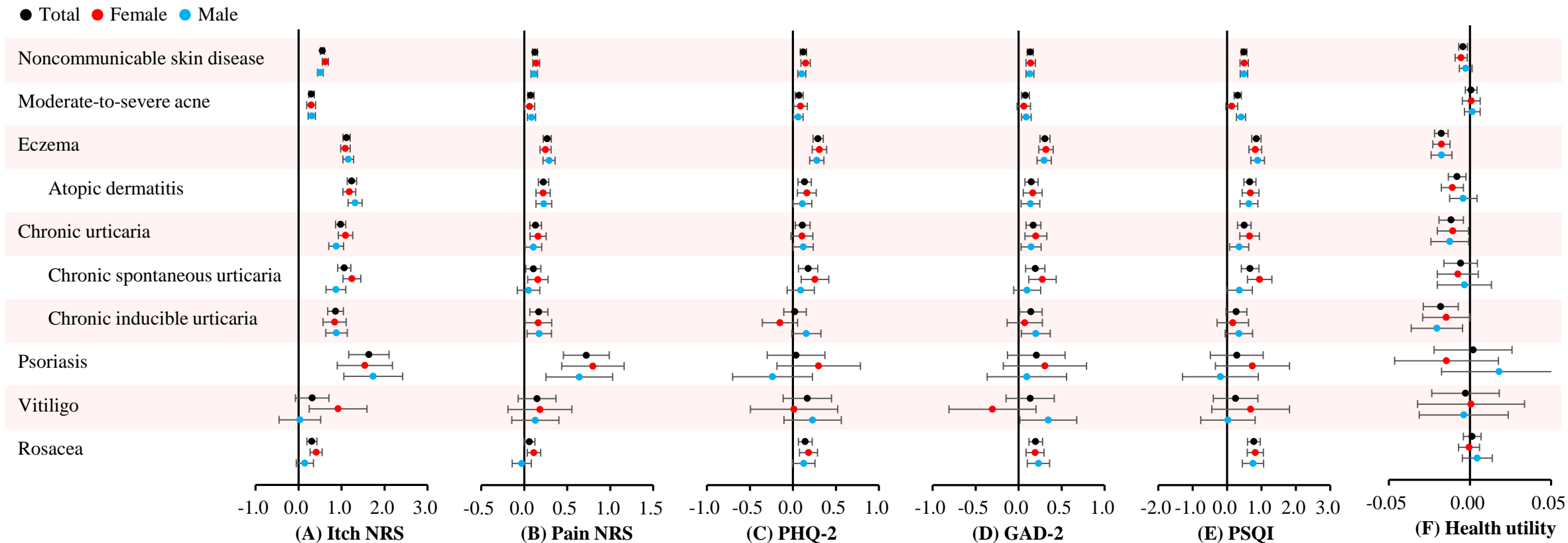


Figure S2. Adjusted mean differences of PRO scores of noncommunicable skin diseases compared to healthy controls. (A) Itch NRS; (B) pain NRS; (C) PHQ-2; (D) GAD-2; (E) PSQI; (F) health utility mapping from the EQ-5D-3L.

Table S1. Adjusted mean differences of PRO scores in skin diseases compared to healthy controls using the mixed linear models

Group	Itch NRS		Pain NRS		PHQ-2		GAD-2		PSQI		Health utility	
	MD (SE)	<i>P</i>	MD (SE)	<i>P</i>	MD (SE)	<i>P</i>	MD (SE)	<i>P</i>	MD (SE)	<i>P</i>	MD (SE)	<i>P</i>
Noncommunicable skin diseases	0.56 (0.02)	<0.001	0.13 (0.01)	<0.001	0.12 (0.02)	<0.001	0.14 (0.02)	<0.001	0.49 (0.04)	<0.001	-0.0043 (0.0014)	0.002
Moderate-to-severe acne	0.30 (0.03)	<0.001	0.08 (0.02)	<0.001	0.07 (0.02)	0.002	0.08 (0.02)	<0.001	0.31 (0.05)	<0.001	0.0007 (0.0018)	0.698
Eczema	1.12 (0.04)	<0.001	0.27 (0.02)	<0.001	0.29 (0.03)	<0.001	0.31 (0.03)	<0.001	0.85 (0.07)	<0.001	-0.0177 (0.0021)	<0.001
Atopic dermatitis	1.12 (0.05)	<0.001	0.22 (0.03)	<0.001	0.14 (0.04)	<0.001	0.15 (0.04)	<0.001	0.66 (0.09)	<0.001	-0.0079 (0.0028)	0.004
Chronic urticaria	0.98 (0.06)	<0.001	0.13 (0.03)	<0.001	0.11 (0.04)	0.011	0.17 (0.04)	<0.001	0.50 (0.10)	<0.001	-0.0116 (0.0039)	0.003
Chronic spontaneous urticaria	1.06 (0.08)	<0.001	0.11 (0.04)	0.017	0.18 (0.06)	0.002	0.19 (0.06)	<0.001	0.67 (0.13)	<0.001	-0.0058 (0.0053)	0.269
Chronic inducible urticaria	0.86 (0.09)	<0.001	0.17 (0.05)	0.001	0.02 (0.07)	0.727	0.14 (0.07)	0.032	0.27 (0.15)	0.079	-0.0180 (0.0055)	0.001
Psoriasis	1.63 (0.24)	<0.001	0.72 (0.14)	<0.001	0.04 (0.17)	0.829	0.21 (0.17)	0.227	0.28 (0.39)	0.476	0.0019 (0.0123)	0.877
Vitiligo	0.32 (0.20)	0.113	0.15 (0.11)	0.187	0.17 (0.14)	0.246	0.13 (0.14)	0.345	0.25 (0.33)	0.456	-0.0028 (0.0106)	0.795
Rosacea	0.31 (0.06)	<0.001	0.06 (0.03)	0.065	0.14 (0.04)	<0.001	0.20 (0.04)	<0.001	0.78 (0.09)	<0.001	0.0014 (0.0028)	0.624

NRS: numeric rating scale. PHQ: Patient Health Questionnaire. GAD: Generalized Anxiety Disorder. PSQI: Pittsburgh Sleep Quality Index. MD: mean difference. SE: standard error.

Table S2. Adjusted odds ratios of PROs (dichotomous) in skin diseases compared to healthy controls using the mixed generalized linear model

Group	Itch (NRS \geq 3)			Pain (NRS \geq 3)			Depression (PHQ-2 \geq 3)			Anxiety (GAD-2 \geq 3)			Sleep disturbance (PSQI \geq 6)		
	N (%)	AOR (95% UI)	<i>P</i>	N (%)	AOR (95% UI)	<i>P</i>	N (%)	AOR (95% UI)	<i>P</i>	N (%)	AOR (95% UI)	<i>P</i>	N (%)	AOR (95% UI)	<i>P</i>
Healthy controls	1728 (11.8)	Reference		367 (2.5)	Reference		778 (5.3)	Reference		825 (5.6)	Reference		3147 (21.5)	Reference	
Noncommunicable skin diseases	1230 (22.1)	2.13 (1.98, 2.30)	<0.001	243 (4.4)	1.78 (1.52, 2.08)	<0.001	388 (7.0)	1.30 (1.15, 1.46)	<0.001	417 (7.5)	1.33 (1.19, 1.49)	<0.001	1551 (27.9)	1.43 (1.33, 1.53)	<0.001
Moderate-to-severe acne	512 (17.6)	1.58 (1.42, 1.76)	<0.001	111 (3.8)	1.53 (1.24, 1.89)	<0.001	167 (5.8)	1.15 (0.97, 1.36)	0.120	171 (5.9)	1.13 (0.95, 1.34)	0.1633	682 (23.5)	1.20 (1.09, 1.32)	<0.001
Eczema	539 (32.8)	3.65 (3.31, 4.03)	<0.001	103 (6.3)	2.65 (2.20, 3.20)	<0.001	176 (10.7)	1.83 (1.58, 2.11)	<0.001	183 (11.1)	1.81 (1.57, 2.09)	<0.001	622 (37.8)	1.94 (1.76, 2.14)	<0.001
Atopic dermatitis	331 (36.4)	4.29 (3.81, 4.82)	<0.001	51 (5.6)	2.35 (1.83, 3.00)	<0.001	68 (7.5)	1.23 (0.97, 1.56)	0.081	74 (8.1)	1.26 (1.00, 1.58)	0.0495	316 (34.7)	1.70 (1.49, 1.94)	<0.001
Chronic urticaria	214 (29.9)	3.20 (2.79, 3.68)	<0.001	32 (4.5)	1.82 (1.32, 2.52)	<0.001	52 (7.3)	1.42 (1.09, 1.84)	0.008	59 (8.2)	1.56 (1.22, 1.99)	<0.001	204 (28.5)	1.57 (1.34, 1.84)	<0.001
Chronic spontaneous urticaria	134 (32.4)	3.60 (3.04, 4.27)	<0.001	20 (4.8)	1.99 (1.35, 2.94)	<0.001	33 (8.0)	1.50 (1.10, 2.06)	0.012	33 (8.0)	1.40 (1.00, 1.95)	0.0517	130 (31.4)	1.77 (1.45, 2.15)	<0.001
Chronic inducible urticaria	80 (26.5)	2.71 (2.18, 3.36)	<0.001	12 (4.0)	1.60 (0.94, 2.74)	0.083	19 (6.3)	1.29 (0.84, 1.99)	0.242	26 (8.6)	1.80 (1.29, 2.51)	<0.001	74 (24.5)	1.31 (1.01, 1.70)	0.043
Psoriasis	19 (42.2)	5.87 (3.78, 9.11)	<0.001	6 (13.3)	5.99 (3.77, 9.50)	<0.001	3 (6.7)	1.45 (0.54, 3.86)	0.458	6 (13.3)	2.38 (1.27, 4.46)	0.0071	13 (28.9)	1.42 (0.77, 2.61)	0.258
Vitiligo	11 (17.2)	1.53 (0.82, 2.86)	0.181	1 (1.6)	0.71 (0.07, 7.83)	0.783	3 (4.7)	0.89 (0.25, 3.16)	0.857	5 (7.8)	1.41 (0.63, 3.17)	0.4077	14 (21.9)	0.99 (0.53, 1.85)	0.965
Rosacea	135 (15.9)	1.42 (1.17, 1.72)	<0.001	27 (3.2)	1.29 (0.86, 1.95)	0.224	61 (7.2)	1.36 (1.05, 1.76)	0.020	70 (8.2)	1.51 (1.20, 1.92)	<0.001	256 (30.1)	1.61 (1.39, 1.86)	<0.001

NRS: numeric rating scale. PHQ: Patient Health Questionnaire. GAD: Generalized Anxiety Disorder. PSQI: Pittsburgh Sleep Quality Index. AOR: adjusted odds ratio. UI: uncertainty interval.