

Supplementary Material

TABLE 1 The numbers and percentages of missing covariate date

Covariate	Numbers	Percentages
BMI	52	3.07
Moderate Activity	1	0.06
Alcohol consumption status	1	0.06
Poverty-income ratio	89	5.25
Education	1	0.06
Smoking status	2	0.12
Chronic kidney disease	11	0.65

TABLE 2 Baseline characteristics of the study population in the NHANES 2001–2002(with excluding missing data).

Characters	Overall(n=1,543)	Q1(n=386)	Q2(n=386)	Q3(n=386)	Q4(n=385)	P-value
Age (years)	43.30±0.53	[0.453-0.864]	(0.864-1.005]	(1.005-1.177]	(1.177,2.429]	<0.001
BMI		53.06±0.90	45.14±0.96	40.33±0.96	37.46±0.98	
< 30	72.98(66.87,79.09)	67.07(61.62,72.51)	71.47(66.84,76.10)	75.33(71.25,79.41)	76.36(73.06,79.66)	
≥ 30	27.02(23.54,30.50)	32.93(27.49,38.38)	28.53(23.90,33.16)	24.67(20.59,28.75)	23.64(20.34,26.94)	0.308
Race/ethnicity						0.308
Mexican American	8.04(5.97,10.11)	4.70(2.68,6.72)	9.45(7.43,11.48)	9.74(6.84,12.65)	7.79(4.22,11.36)	
Non-Hispanic Black	9.03(6.81,11.25)	9.02(5.79,12.26)	8.20(5.04,11.36)	8.70(5.77,11.63)	9.99(6.08,13.91)	
Non-Hispanic White	74.19(66.25,82.14)	79.75(74.65,84.85)	73.58(66.94,80.19)	71.01(64.12,77.90)	73.52(64.54,82.50)	
Other Hispanic	5.66(1.35,9.96)	3.54(0.00,7.69)	7.04(2.09,11.99)	5.86(1.51,10.20)	5.87(0.91,10.83)	
Other race/ethnicity	3.08(1.60,4.55)	2.99(0.07,5.90)	1.73(0.20,3.25)	4.69(0.92,8.46)	2.83(0.44,5.21)	0.272
Education						
Less Than high school	17.50(14.67,20.33)	21.09(15.86,26.32)	17.28(13.98,20.58)	19.22(14.15,24.30)	13.62(10.52,16.73)	
High school Grad	26.33(23.16,29.49)	27.68(21.42,33.94)	26.22(19.73,32.70)	24.09(18.80,29.38)	27.41(24.21,30.61)	
Above high school	56.17(49.71,62.64)	51.23(43.90,58.57)	56.50(50.10,62.91)	56.68(48.19,65.18)	58.97(56.65,61.28)	0.551
Poverty-income ratio						
< 1.3	16.10(13.15,19.04)	16.33(11.65,21.01)	11.61(7.67,15.55)	17.48(12.99,21.97)	18.36(11.92,24.79)	
1.3-3.5	35.16(30.99,39.34)	34.91(28.79,41.03)	38.36(34.09,42.63)	33.56(24.35,42.76)	34.15(29.85,38.45)	
≥ 3.5	48.74(43.31,54.17)	48.76(40.76,56.76)	50.03(45.49,54.56)	48.96(38.55,59.37)	47.49(42.51,52.47)	0.136
Smoking status						
Now	27.97(23.82,32.12)	27.78(20.40,35.17)	25.65(18.34,32.97)	29.76(24.41,35.12)	28.42(20.93,35.92)	
Former	28.15(24.23,32.07)	33.95(28.18,39.73)	32.75(25.57,39.93)	23.68(20.26,27.11)	24.19(20.03,28.36)	
Never	43.88(38.06,49.69)	38.26(31.02,45.50)	41.59(34.29,48.90)	46.55(42.72,50.39)	47.38(39.11,55.65)	0.747
Alcohol consumption status						
Yes	85.13(75.31,94.96)	83.05(74.82,91.28)	84.51(76.94,92.08)	86.25(80.25,92.25)	86.15(77.26,95.04)	
No	14.87(8.18,21.55)	16.95(8.72,25.18)	15.49(7.92,23.06)	13.75(7.75,19.75)	13.85(4.96,22.74)	0.018
Vigorous Activity						
Yes	45.35(40.49,50.22)	36.87(30.76,42.99)	40.35(32.95,47.74)	46.46(38.07,54.84)	54.47(47.85,61.10)	
No	54.65(48.86,60.43)	63.13(57.01,69.24)	59.65(52.26,67.05)	53.54(45.16,61.93)	45.53(38.90,52.15)	0.881
Moderate Activity						
Yes	53.69(47.60,59.78)	54.72(47.20,62.25)	55.49(48.84,62.13)	52.42(43.65,61.20)	52.61(44.70,60.51)	
No	46.31(41.20,51.42)	45.28(37.75,52.80)	44.51(37.87,51.16)	47.58(38.80,56.35)	47.39(39.49,55.30)	0.001
Hypertension						
Yes	51.30(46.17,56.43)	60.43(54.95,65.90)	55.49(48.31,62.68)	49.37(42.27,56.47)	43.10(38.07,48.14)	
No	48.70(42.30,55.10)	39.57(34.10,45.05)	44.51(37.32,51.69)	50.63(43.53,57.73)	56.90(51.86,61.93)	0.088
Diabetes						
Yes	7.89(6.43,9.34)	10.94(7.72,14.22)	8.88(5.68,12.08)	7.52(4.84,10.21)	5.21(2.60,7.81)	
No	92.11(84.13,100.10)	89.03(85.79,92.28)	91.12(87.92,94.32)	92.48(89.79,95.16)	94.79(92.19,97.40)	<0.001
Cardiovascular Disease						
Yes	6.69(5.68,7.70)	14.17(10.32,18.01)	5.65(3.22,8.08)	4.83(2.91,6.76)	3.83(1.45,6.21)	
No	93.31(85.26,101.37)	85.83(81.99,89.68)	94.35(91.92,96.78)	95.17(93.24,97.09)	96.17(93.79,98.55)	
Chronic kidney disease						<0.001
Yes	8.99(7.77,10.21)	18.70(14.25,23.16)	8.60(5.68,11.53)	6.30(4.10,8.49)	4.75(2.71,6.79)	

No	91.01(83.40,98.62)	81.30(76.84,85.75)	91.40(88.47,94.32)	93.70(91.51,95.90)	95.25(93.21,97.29)	0.008
Hyperlipidemia						
Yes	73.49(66.85,80.14)	77.99(74.75-81.23)	77.51(73.40,81.62)	74.78(70.28,79.29)	65.92(59.23,72.61)	
No	26.51(23.69,29.32)	22.01(18.77,25.25)	22.49(18.38,26.60)	25.22(20.71,29.72)	34.15(29.85,38.45)	0.553
ED medications						
Yes	0.42(0.02,0.82)	0.71(0.00,1.81)	0.75(0.00,1.93)	0.36(-0.36,1.08)	0.00(0.00,0.00)	
No	99.58(91.60,107.56)	99.29(98.19,100.40)	99.25(98.07,100.42)	99.64(98.92,100.36)	100.00(100.00,100.00)	

Values are weighted mean ± SD or weighted % (95% confidence interval). P values are weighted. BMI, body mass index.

TABLE 3 Multivariable logistic regressions analysis between LTL and ED(with excluding missing data).

Exposure	model 1	model 2	model 3
Continuous	0.12(0.06,0.24) ***P<0.0001	1.00(0.50,2.00) P=0.990	1.07(0.51, 2.27) P=0.843
Quartile			
Q1	Reference	Reference	Reference
Q2	0.67(0.50,0.91) *P=0.014	1.39(0.99,1.95) P=0.058	1.44(1.02,2.04) *P=0.045
Q3	0.53(0.37,0.77) **P=0.003	1.57(1.05,2.34) *P=0.029	1.67(1.15, 2.44) *P=0.011
Q4	0.31(0.20,0.46) ***P<0.0001	1.24(0.75,2.07) P=0.377	1.31(0.78, 2.17) P=0.282
P for trend	***P<0.0001	0.381	0.279

OR, odds ratio; CI, confidence interval. Model 1 without any adjustment; Model 2 adjusted for age, race/ethnicity, education level, smoking status, PIR, vigorous activity, moderate activity, alcohol consumption status; Model 3 adjusted for age, race/ethnicity, education level, smoking status, PIR, vigorous activity, moderate activity, alcohol consumption status, hypertension, Diabetes, CVD, CKD, Hyperlipidemia.

Supplementary Material

TABLE 4 Multivariable logistic regressions analysis between LTL and ED(Q3 as reference)

Exposure	Model 1	Model 2	Model 3
Quartile			
Q1	1.83(1.27,2.65) **P=0.004	0.61(0.40,0.93) *P=0.025	0.56(0.39, 0.80) **P=0.004
Q2	1.30(0.85,1.98) P=0.207	0.87(0.50,1.52) P=0.611	0.84(0.50, 1.43) P=0.502
Q3	Reference	Reference	Reference
Q4	0.53(0.33,0.85) *P=0.012	0.73(0.45,1.17) P=0.177	0.69(0.40, 1.19) P=0.173

OR, odds ratio; CI, confidence interval. Model 1 without any adjustment; Model 2 adjusted for age, race/ethnicity, education level, smoking status, PIR, vigorous activity, moderate activity, alcohol consumption status; Model 3 adjusted for age, race/ethnicity, education level, smoking status, PIR, vigorous activity, moderate activity, alcohol consumption status, hypertension, Diabetes, CVD, CKD, Hyperlipidemia.

TABLE 5 Baseline characteristics of ED participants and non-ED participants

Characters	ED	Non-ED	P-value
Leukocyte telomere length(T/S ratio)	0.97±0.02	1.09±0.02	<0.0001
Age (years)	58.32±1.00	40.83±0.45	<0.0001
BMI			0.002
< 30	62.74(56.44,69.04)	74.67 (72.05,77.29)	
≥ 30	37.26(30.96,43.56)	25.33(22.71,27.95)	
Race/ethnicity			0.360
Mexican American	7.30(4.41,10.19)	8.16(6.13,10.18)	
Non-Hispanic Black	9.15(5.32,12.98)	9.20(6.72,11.68)	
Non-Hispanic White	74.18(65.15,83.22)	73.87(68.95,78.80)	
Other Hispanic	7.52(0.00,15.88)	5.42(2.04,8.81)	
Other race/ethnicity	1.84(0.78,2.91)	3.35(1.79,4.90)	
Education			<0.0001
Less Than high school	33.23(26.09,40.37)	14.97(12.55,17.38)	
High school Grad	19.07(13.58,24.55)	27.48(24.69,30.26)	
Above high school	47.71(40.56,54.85)	57.56(53.92,61.19)	

Supplementary Material

Poverty-income ratio			0.061
< 1.3	20.13(14.89,25.37)	14.85(12.66,17.04)	
1.3-3.5	39.25(31.39,47.10)	36.83(33.03,40.62)	
≥ 3.5	40.62(33.28,47.97)	48.32(44.01,52.63)	
Smoking status			<0.0001
Now	27.53(20.93,34.13)	28.17(24.62,31.73)	
Former	43.69(38.99,48.40)	25.27(22.04,28.50)	
Never	28.78(23.84,33.71)	46.55(41.62,51.48)	
Alcohol consumption status			0.059
Yes	80.93(73.60,88.26)	85.47(79.02,91.93)	
No	19.07(11.74,26.40)	14.53(8.07,20.98)	
Vigorous Activity			<0.0001
Yes	26.16(19.63,32.68)	48.04(44.37,51.71)	
No	73.84(67.32,80.37)	51.96(48.29,55.63)	
Moderate Activity			0.025
Yes	44.06(37.33,50.79)	54.02(49.90,58.14)	

No	55.94(49.21,62.67)	45.98(41.86,50.10)	
Hypertension			<0.0001
Yes	74.64(69.12,80.17)	48.16(44.04,52.29)	
No	25.36(19.83,30.88)	51.84(47.71,55.96)	
Diabetes			<0.0001
Yes	25.94(21.33,30.55)	5.50(3.85,7.14)	
No	74.06(69.45,78.67)	94.50(92.86,96.15)	
Cardiovascular Disease			<0.0001
Yes	21.65(16.83,26.47)	4.33(3.46,5.21)	
No	78.35(73.53,83.17)	95.67(94.79-96.54)	
Chronic kidney disease			<0.0001
Yes	26.28(22.36,30.21)	6.60(5.16,8.03)	
No	73.72(69.79,77.64)	93.40(91.97,94.84)	
Hyperlipidemia			0.037
Yes	79.47(75.10,83.84)	72.53(69.97,75.09)	
No	20.53(16.16,24.90)	27.47(24.91,30.03)	
ED medications			<0.0001

Supplementary Material

Yes	2.77(0.39,5.14)	0.02(0.00,0.05)
No	97.23(94.86,99.61)	99.98(99.95,100.02)

Values are weighted mean ± SD or weighted % (95% confidence interval).

P values are weighted. ED: erectile dysfunction ; BMI, body mass index.

ED medications: sildenafil citrate and yohimbine

TABLE 6 Multivariable logistic regressions analysis between LTL and ED(after removing the outlier)

Exposure	model 1	model 2	model 3
Continuous	0.12(0.06,0.23) ***P<0.0001	1.04(0.53,2.07) P=0.897	1.08(0.53, 2.21) P=0.821
Quartile			
Q1	Reference	Reference	Reference
Q2	0.70(0.54,0.91) *P=0.012	1.44(1.01,2.07) *P=0.046	1.53(1.02,2.31) *P=0.043
Q3	0.53(0.37,0.76) **P=0.003	1.59(1.05,2.42) *P=0.030	1.77(1.22,2.57) **P=0.005
Q4	0.29(0.20,0.43) ***P<0.0001	1.20(0.74,1.94) P=0.440	1.26(0.77, 2.05) P=0.314

OR, odds ratio; CI, confidence interval.Model 1 without any adjustment; Model 2 adjusted for age, race/ethnicity, education level, smoking status, PIR, vigorous activity, moderate activity, alcohol consumption status; Model 3 adjusted for age, race/ethnicity, education level, smoking status, PIR, vigorous activity, moderate activity, alcohol consumption status, hypertension, Diabetes, CVD, CKD, Hyperlipidemia.