

Supplementary materials

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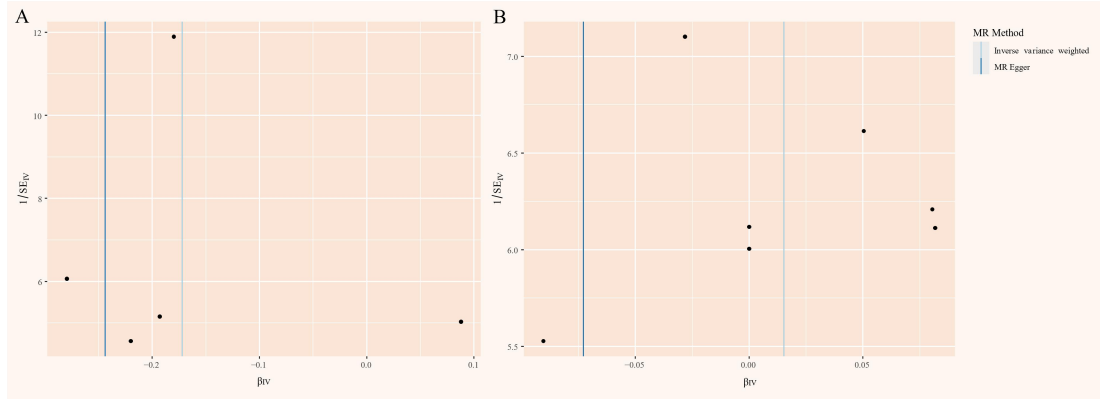
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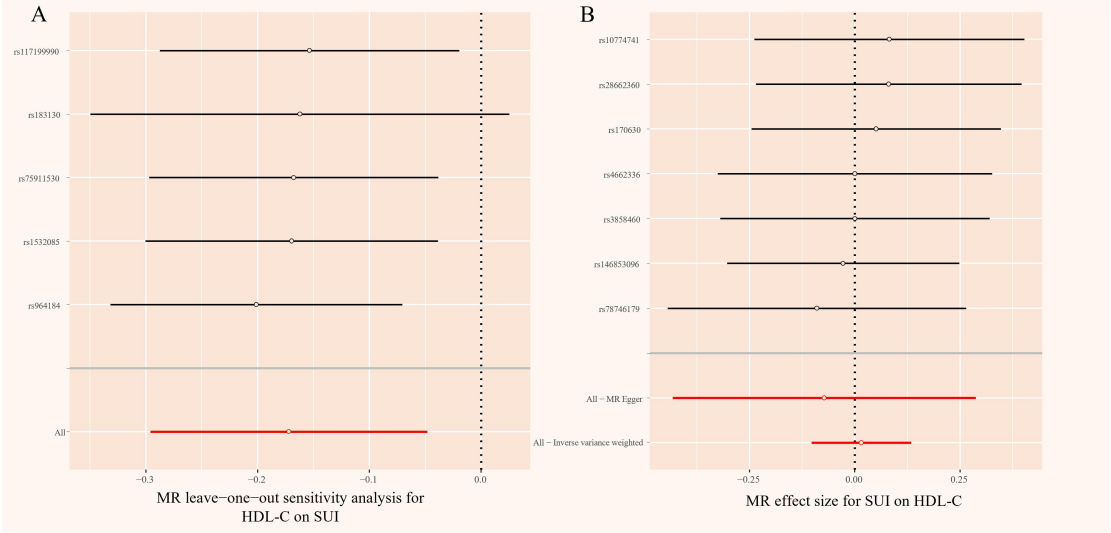
Supplementary figures

Figure S1. (A) Funnel plot of the causal relationship between HDL-C and SUI; (B) Funnel plot of the reverse causal relationship between HDL-C and SUI.



HDL-C: high density lipoprotein cholesterol; SUI: stress urinary incontinence; MR: mendelian randomization; β_{IV} : effect size of instrumental variables; SE_{IV} : the standard error of the instrumental variable effect size.

Figure S2. (A) Mendelian randomization leave-one-out sensitivity analysis graph for HDL-C on SUI; (B) Mendelian randomization leave-one-out sensitivity analysis graph for SUI on HDL-C.



HDL-C: high density lipoprotein cholesterol; SUI: stress urinary incontinence; MR: mendelian randomization.

Supplementary tables

Table S1. Weighted characteristics of study participants.

Variable	Overall (n=85864847)	No-SUI (n=49046999)	SUI (n=36817847)	<i>P</i> -value
Age, n(%)				
< 40 years	30029943.66 (34.97)	21439900.15 (43.71)	8590043.51 (23.33)	<0.00 1
40-59 years	33061348.16 (38.50)	16193410.06 (33.02)	16867938.09 (45.81)	
≥ 60 years	22773554.69 (26.52)	11413689.01 (23.27)	11359865.69 (30.85)	
Race, n(%)				
Non-Hispanic White	60490922.86 (70.45)	32905510.43 (67.09)	27585412.43 (74.92)	<0.00 1
Mexican American	6087963.35 (7.09)	3384700.01 (6.90)	2703263.34 (7.34)	
Other Hispanic	4433546.37 (5.16)	2745731.52 (5.60)	1687814.85 (4.58)	
Non-Hispanic Black	9306466.90 (10.84)	6560314.69 (13.38)	2746152.21 (7.46)	
Other Race	5545947.02 (6.46)	3450742.58 (7.04)	2095204.45 (5.69)	
Education, n(%)				
Less than high school	11993150.06 (13.97)	6476870.81 (13.21)	5516279.25 (14.98)	0.002
High school	19544741.80 (22.76)	10942013.31 (22.31)	8602728.49 (23.37)	
Greater than high school	54326954.65 (63.27)	31628115.10 (64.49)	22698839.55 (61.65)	
Marital status, n(%)				
Married/living with partner	52019824.35 (60.58)	27994335.71 (57.08)	24025488.64 (65.26)	<0.00 1
Living alone	33845022.16 (39.42)	21052663.52 (42.92)	12792358.65 (34.74)	
PIR, n(%)				
≥ 2	55867031.50 (65.06)	31468745.90 (64.16)	24398285.60 (66.27)	0.007
< 2	29997815.01 (34.94)	17578253.33 (35.84)	12419561.68 (33.73)	
BMI, n(%)				
< 25 kg/m ²	29607094.38 (34.48)	19756313.04 (40.28)	9850781.34 (26.76)	<0.00 1

25-30 kg/m ²	24083737.67 (28.05)	13519857.13 (27.57)	10563880.55 (28.69)	
≥ 30 kg/m ²	32174014.46 (37.47)	15770829.06 (32.15)	16403185.40 (44.55)	
Hypertension, n(%)				
No	59175144.13 (68.92)	36241299.04 (73.89)	22933845.09 (62.29)	<0.00 1
Yes	26689702.38 (31.08)	12805700.18 (26.11)	13884002.20 (37.71)	
Diabetes, n(%)				
No	78438450.88 (91.35)	45747500.99 (93.27)	32690949.89 (88.79)	<0.00 1
Yes	7426395.63 (8.65)	3299498.24 (6.73)	4126897.39 (11.21)	
Vigorous recreational activities, n(%)				
No	63861450.98 (74.37)	35017078.56 (71.39)	28844372.42 (78.34)	<0.00 1
Yes	22003395.53 (25.63)	14029920.67 (28.61)	7973474.86 (21.66)	
Smoke, n(%)				
No	51462252.33 (59.93)	30633871.27 (62.46)	20828381.06 (56.57)	<0.00 1
Former	18395428.49 (21.42)	9547989.78 (19.47)	8847438.71 (24.03)	
Current	16007165.70 (18.64)	8865138.18 (18.07)	7142027.52 (19.40)	
Alcohol, n(%)				
No	23733522.40 (27.64)	13801482.91 (28.14)	9932039.49 (26.98)	0.136
Yes	62131324.11 (72.36)	35245516.32 (71.86)	26885807.80 (73.02)	
CHD, n(%)				
No	83906652.14 (97.72)	48197935.03 (98.27)	35708717.11 (96.99)	<0.00 1
Yes	1958194.37 (2.28)	849064.20 (1.73)	1109130.18 (3.01)	
Stroke, n(%)				
No	83283795.23 (96.99)	47961817.90 (97.79)	35321977.33 (95.94)	<0.00 1
Yes	2581051.28 (3.01)	1085181.33 (2.21)	1495869.96 (4.06)	
Cancer/malignancy, n(%)				
No	76378459.77	44456076.59	31922383.18	<0.00

	(88.95)	(90.64)	(86.70)	1
Yes	9486386.74	4590922.63	4895464.10	
	(11.05)	(9.36)	(13.30)	
FBG (mean (SD)), mg/dL	102.825	100.640	105.678	<0.00
	(28.117)	(26.117)	(30.300)	1
INS (mean (SD)), uU/mL	12.141	11.413	13.096	<0.00
	(14.816)	(14.406)	(15.285)	1
ALB (mean (SD)), g/dL	4.172 (0.313)	4.191 (0.312)	4.148 (0.313)	<0.00
				1
ALT (mean (SD)), U/L	21.024	20.435	21.808	<0.00
	(20.972)	(24.932)	(14.021)	1
AST (mean (SD)), U/L	22.992	22.691	23.394	0.006
	(12.833)	(12.833)	(12.822)	
BUN (mean (SD)), mg/dL	12.872 (5.350)	12.491 (5.243)	13.380	<0.00
			(5.449)	1
SCr (mean (SD)), mg/dL	0.787 (0.301)	0.784 (0.344)	0.792 (0.232)	0.087
TBil (mean (SD)), mg/dL	0.593 (0.273)	0.602 (0.271)	0.582 (0.276)	<0.00
				1
TG (mean (SD)), mg/dL	116.529	108.377	127.231	<0.00
	(93.194)	(90.360)	(95.752)	1
Total Cholesterol (mean (SD)), mg/dL	197.341	194.611	200.977	<0.00
	(40.657)	(40.286)	(40.867)	1
LDL-C (mean (SD)), mg/dL	114.236	112.204	116.906	<0.00
	(35.099)	(34.995)	(35.062)	1
HDL-C (mean (SD)), mg/dL	58.786	59.759	57.491	<0.00
	(16.788)	(16.670)	(16.859)	1
HDL-C quartiles, n(%)				
Q1	20682406.48	10657796.56	10024609.92	<0.00
	(24.09)	(21.73)	(27.23)	1
Q2	21780386.28	11981091.90	9799294.38	
	(25.37)	(24.43)	(26.62)	
Q3	21423453.59	12728673.50	8694780.09	
	(24.95)	(25.95)	(23.62)	
Q4	21978600.17	13679437.26	8299162.90	
	(25.60)	(27.89)	(22.54)	

HDL-C: high density lipoprotein cholesterol; SUI: stress urinary incontinence; PIR: poverty-income ratio; BMI: body mass index; CHD: coronary heart disease; FBG: fasting blood glucose; INS: insulin; ALB: albumin; ALT: alanine aminotransferase; AST: aspartate aminotransferase; BUN: blood urea nitrogen; SCr: serum creatinine; TBil: total bilirubin; LDL-C: low density lipoprotein cholesterol; SD: standard deviation.

P-value < 0.05 was considered significant.

Table S2. Associations between TC, LDL-C, and the risk of SUI.

Variables	Model 1		Model 2		Model 3	
	OR (95% CI)	P-value	OR (95% CI)	P-value	OR (95% CI)	P-value
TC	1.004 (1.003 - 1.005)	< 0.001	1.001 (1.000 - 1.002)	0.199	1.001 (1.000 - 1.002)	0.140
LDL-C	1.004 (1.002 - 1.006)	< 0.001	1.001 (0.999 - 1.003)	0.190	1.002 (0.998 - 1.006)	0.271

TC: total cholesterol; LDL-C: low density lipoprotein cholesterol; SUI: stress urinary incontinence; OR: odds ratio; CI: confidence intervals.

Model 1 was an unadjusted crude model.

Model 2 adjusted for age, race, marital status, PIR, and education.

Model 3 adjusted for age, race, marital status, PIR, education, BMI, hypertension, diabetes, alcohol use, smoke, vigorous recreational activities, coronary heart disease, stroke, cancer/malignancy, ALT, AST, ALB, SCr, BUN, and TBil.

P-value < 0.05 was considered significant.

Table S3. Subgroup analysis of HDL-C categories and SUI.

Subgroup	OR (95% CI)	P-value
HDL-C $\geq$ 67mg/dL	Ref	
Age, n(%)		
< 40 years	1.337 (1.095 - 1.634)	0.005
40-59 years	1.254 (1.048 - 1.500)	0.014
$\geq$ 60 years	1.128 (0.947 - 1.343)	0.175
Race, n(%)		
Non-Hispanic White	1.226 (1.074 - 1.399)	0.003
Mexican American	1.529 (1.186 - 1.971)	0.001
Other Hispanic	1.024 (0.731 - 1.436)	0.888
Non-Hispanic Black	1.030 (0.841 - 1.261)	0.771
Other Race	1.327 (0.956 - 1.842)	0.090
Education, n(%)		
Less than high school	1.055 (0.852 - 1.306)	0.623
High school	1.288 (1.016 - 1.632)	0.037
Greater than high school	1.224 (1.079 - 1.388)	0.002
Marital status, n(%)		
Married/living with partner	1.224 (1.057 - 1.418)	0.007
Living alone	1.200 (1.033 - 1.394)	0.018
PIR, n(%)		
$\geq$ 2	1.220 (1.067 - 1.395)	0.004
< 2	1.219 (1.025 - 1.450)	0.025
BMI, n(%)		
< 25 kg/m ²	0.985 (0.831 - 1.168)	0.863
25-30 kg/m ²	1.367 (1.151 - 1.623)	0.001
$\geq$ 30 kg/m ²	1.486 (1.247 - 1.770)	0.000
Hypertension, n(%)		
Yes	1.169 (0.983 - 1.389)	0.076
No	1.238 (1.096 - 1.399)	0.001
Diabetes, n(%)		
Yes	1.478 (1.029 - 2.124)	0.035
No	1.196 (1.073 - 1.331)	0.001
Smoke, n(%)		
No	1.231 (1.096 - 1.383)	0.001
Former	1.135 (0.911 - 1.414)	0.255
Current	1.299 (1.011 - 1.671)	0.041
Alcohol, n(%)		
Yes	1.198 (1.061 - 1.352)	0.004
No	1.226 (1.020 - 1.474)	0.031
Vigorous recreational activities, n(%)		
Yes	1.178 (0.974 - 1.425)	0.090
No	1.224 (1.088 - 1.377)	0.001
Coronary heart disease, n(%)		

Yes	0.595 (0.277 - 1.275)	0.177
No	1.224 (1.103 - 1.358)	0.000
Stroke, n(%)		
Yes	0.760 (0.448 - 1.287)	0.303
No	1.229 (1.105 - 1.368)	0.000
Cancer/malignancy, n(%)		
Yes	1.114 (0.843 - 1.472)	0.444
No	1.216 (1.087 - 1.361)	0.001

HDL-C: high density lipoprotein cholesterol; SUI: stress urinary incontinence; PIR: poverty-income ratio; BMI: body mass index; OR; odds ratio; CI: confidence intervals.

P-value < 0.05 was considered significant.

Table S4. Subgroup analysis of HDL-C quartiles and SUI.

Subgroup	Q1	Q2		Q3		Q4	
		OR (95% CI)	P-value	OR (95% CI)	P-value	OR (95% CI)	P-value
Age, n(%)							
< 40 years	-	0.927 (0.760 - 1.131)	0.452	0.805 (0.655 - 0.990)	0.040	0.634 (0.499 - 0.805)	< 0.001
40-59 years	-	0.949 (0.780 - 1.155)	0.599	0.849 (0.711 - 1.014)	0.071	0.727 (0.592 - 0.893)	0.003
≥ 60 years	-	0.977 (0.798 - 1.197)	0.822	0.872 (0.701 - 1.085)	0.217	0.822 (0.655 - 1.032)	0.091
Race, n(%)							
Non-Hispanic White	-	0.956 (0.816 - 1.121)	0.581	0.837 (0.718 - 0.976)	0.024	0.733 (0.611 - 0.880)	0.001
Mexican American	-	1.072 (0.853 - 1.347)	0.547	0.853 (0.664 - 1.098)	0.214	0.614 (0.462 - 0.817)	0.001
Other Hispanic	-	1.055 (0.778 - 1.431)	0.728	0.999 (0.688 - 1.451)	0.995	0.981 (0.680 - 1.415)	0.917
Non-Hispanic Black	-	0.816 (0.660 - 1.010)	0.062	0.792 (0.645 - 0.973)	0.027	0.811 (0.631 - 1.043)	0.101
Other Race	-	0.866 (0.572 - 1.312)	0.494	0.971 (0.678 - 1.392)	0.872	0.703 (0.464 - 1.066)	0.096
Education, n(%)							
Less than high school	-	1.025 (0.833 - 1.261)	0.816	0.914 (0.726 - 1.151)	0.441	0.939 (0.731 - 1.206)	0.618
High school	-	0.999 (0.798 - 1.250)	0.992	0.925 (0.744 - 1.151)	0.481	0.742 (0.556 - 0.991)	0.043
Greater than high school	-	0.900 (0.767 - 1.057)	0.197	0.801 (0.683 - 0.940)	0.007	0.698 (0.583 - 0.836)	< 0.001
Marital status, n(%)							
Married/living with	-	0.978	0.7	0.885	0.1	0.754	0.0

partner		(0.848 - 1.129)	62	(0.757 - 1.036)	27	(0.622 - 0.913)	04
		0.899		0.796		0.729	
Living alone	-	(0.749 - 1.080)	0.2 54	(0.674 - 0.941)	0.0 08	(0.599 - 0.888)	0.0 02
PIR, n(%)							
≥ 2	-	0.969 (0.819 - 1.146)	0.7 12	0.877 (0.756 - 1.018)	0.0 83	0.750 (0.626 - 0.899)	0.0 02
< 2	-	0.933 (0.816 - 1.068)	0.3 13	0.817 (0.684 - 0.976)	0.0 26	0.742 (0.599 - 0.918)	0.0 06
BMI, n(%)							
< 25 kg/m ²	-	0.706 (0.535 - 0.933)	0.0 15	0.771 (0.589 - 1.008)	0.0 58	0.773 (0.597 - 1.001)	0.0 51
25-30 kg/m ²	-	1.094 (0.883 - 1.356)	0.4 10	0.913 (0.735 - 1.133)	0.4 04	0.696 (0.554 - 0.875)	0.0 02
≥ 30 kg/m ²	-	1.010 (0.853 - 1.195)	0.9 10	0.858 (0.699 - 1.053)	0.1 41	0.666 (0.537 - 0.827)	< 0.0 01
Hypertension, n(%)							
Yes	-	1.006 (0.839 - 1.207)	0.9 48	0.990 (0.818 - 1.197)	0.9 15	0.858 (0.689 - 1.068)	0.1 68
No	-	0.919 (0.794 - 1.065)	0.2 59	0.789 (0.678 - 0.919)	0.0 03	0.689 (0.582 - 0.816)	< 0.0 01
Diabetes, n(%)							
Yes	-	0.960 (0.709 - 1.301)	0.7 93	0.910 (0.647 - 1.279)	0.5 83	0.644 (0.434 - 0.955)	0.0 29
No	-	0.949 (0.837 - 1.075)	0.4 07	0.846 (0.750 - 0.955)	0.0 07	0.752 (0.650 - 0.870)	< 0.0 01
Smoke, n(%)							
No	-	0.897 (0.768 - 1.048)	0.1 69	0.865 (0.741 - 1.008)	0.0 64	0.702 (0.598 - 0.824)	< 0.0 01
Former	-	1.002 (0.780 - 1.288)	0.9 86	0.932 (0.738 - 1.178)	0.5 52	0.894 (0.676 - 1.181)	0.4 26

Current	-	1.057 (0.819 - 1.364)	0.6 67	0.688 (0.530 - 0.892)	0.0 05	0.702 (0.513 - 0.960)	0.0 27
Alcohol, n(%)							
Yes	-	0.917 (0.797 - 1.055)	0.2 25	0.818 (0.713 - 0.939)	0.0 05	0.738 (0.627 - 0.867)	< 0.0 01
No	-	1.031 (0.862 - 1.233)	0.7 36	0.941 (0.774 - 1.143)	0.5 36	0.769 (0.610 - 0.971)	0.0 27
Vigorous recreational activities, n(%)							
Yes	-	0.894 (0.682 - 1.171)	0.4 13	0.789 (0.607 - 1.025)	0.0 75	0.711 (0.546 - 0.928)	0.0 12
No	-	0.961 (0.851 - 1.085)	0.5 18	0.870 (0.765 - 0.989)	0.0 33	0.754 (0.650 - 0.874)	< 0.0 01
Coronary heart disease, n(%)							
Yes	-	1.670 (0.885 - 3.149)	0.1 11	0.999 (0.506 - 1.971)	0.9 97	2.189 (0.971 - 4.935)	0.0 59
No	-	0.935 (0.833 - 1.050)	0.2 54	0.845 (0.752 - 0.949)	0.0 05	0.731 (0.635 - 0.841)	< 0.0 01
Stroke, n(%)							
Yes	-	0.743 (0.416 - 1.327)	0.3 11	0.565 (0.305 - 1.047)	0.0 69	0.926 (0.482 - 1.778)	0.8 15
No	-	0.957 (0.852 - 1.075)	0.4 52	0.861 (0.763 - 0.972)	0.0 16	0.742 (0.641 - 0.859)	< 0.0 01
Cancer/malignancy, n(%)							
Yes	-	0.827 (0.572 - 1.195)	0.3 09	0.760 (0.529 - 1.093)	0.1 37	0.734 (0.523 - 1.028)	0.0 72
No	-	0.963 (0.856 - 1.084)	0.5 32	0.866 (0.767 - 0.977)	0.0 20	0.755 (0.651 - 0.875)	< 0.0 01

HDL-C: high density lipoprotein cholesterol; SUI: stress urinary incontinence; PIR: poverty-income ratio; BMI: body mass index; OR: odds ratio; CI: confidence intervals.

P-value < 0.05 was considered significant.

Table S5. Sensitivity analysis of association between HDL-C and SUI adjusted for data release cycle.

Variables	OR (95% CI)	<i>P</i> -value
Continuous	0.995 (0.992-0.998)	0.001
Categories		
< 67mg/dL	ref	
≥ 67mg/dL	0.829 (0.748-0.918)	< 0.001
Quartiles		
Q1	ref	
Q2	0.951 (0.848-1.067)	0.388
Q3	0.853 (0.759-0.958)	0.008
Q4	0.750 (0.653-0.861)	< 0.001
<i>P</i> for trend	< 0.001	

HDL-C: high density lipoprotein cholesterol; SUI: stress urinary incontinence; OR: odds ratio; CI: confidence intervals.

Model was adjusted for age, race, marital status, PIR, education, BMI, hypertension, diabetes, alcohol use, smoke, vigorous recreational activities, coronary heart disease, stroke, cancer/malignancy, TC, ALT, AST, ALB, SCr, BUN, TBil and data release cycle.

P-value < 0.05 was considered significant.

Table S6. Sensitivity analysis of association between HDL-C and SUI adjusted for blood sampling time.

Variables	OR (95% CI)	P-value
Continuous	0.995 (0.992 - 0.998)	0.001
Binary categories		
< 67mg/dL	ref	
≥ 67mg/dL	0.828 (0.748 - 0.916)	< 0.001
Four categories		
Q1	ref	
Q2	0.950 (0.847 - 1.065)	0.374
Q3	0.852 (0.758 - 0.957)	0.007
Q4	0.748 (0.652 - 0.858)	< 0.001
P for trend	< 0.001	

HDL-C: high density lipoprotein cholesterol; SUI: stress urinary incontinence; OR: odds ratio;

CI: confidence intervals.

Model was adjusted for age, race, marital status, PIR, education, BMI, hypertension, diabetes, alcohol use, smoke, vigorous recreational activities, coronary heart disease, stroke, cancer/malignancy, TC, ALT, AST, ALB, SCr, BUN, TBil and blood sampling time.

P-value < 0.05 was considered significant.

Table S7 Sensitivity analysis of association between HDL-C and SUI adjusted for LDL-C.

Variables	OR (95% CI)	<i>P</i> -value
Continuous	0.992 (0.986 - 0.997)	0.005
Binary categories		
< 67mg/dL	ref	
≥ 67mg/dL	0.855 (0.718 - 1.017)	0.076
Four categories		
Q1	ref	
Q2	0.976 (0.822 - 1.158)	0.779
Q3	0.818 (0.681 - 0.982)	0.032
Q4	0.727 (0.580 - 0.913)	0.007
<i>P</i> for trend	0.003	

HDL-C: high density lipoprotein cholesterol; SUI: stress urinary incontinence; LDL-C: low density lipoprotein cholesterol; OR: odds ratio; CI: confidence intervals.

Model was adjusted for age, race, marital status, PIR, education, BMI, hypertension, diabetes, alcohol use, smoke, vigorous recreational activities, coronary heart disease, stroke, cancer/malignancy, TC, ALT, AST, ALB, SCr, BUN, TBil and LDL-C.

P-value < 0.05 was considered significant.

Table S8. Sensitivity analysis of the association between HDL-C and different degrees of SUI.

Variables	Mild SUI		Moderate SUI		Severe SUI	
	OR (95% CI)	<i>P</i> -value	OR (95% CI)	<i>P</i> -value	OR (95% CI)	<i>P</i> -value
Continuous	0.994 (0.991 - 0.998)	0.001	0.990 (0.985 - 0.995)	< 0.001	0.991 (0.984 - 0.999)	0.023
Categories						
< 67mg/dL	ref		ref		ref	
≥ 67mg/dL	0.831 (0.741 - 0.931)	0.002	0.713 (0.582 - 0.873)	0.001	0.626 (0.497 - 0.787)	< 0.001
Quartiles						
Q1	ref		ref		ref	
Q2	0.959 (0.842 - 1.093)	0.531	0.859 (0.702 - 1.052)	0.141	0.969 (0.776 - 1.212)	0.784
Q3	0.846 (0.745 - 0.960)	0.010	0.723 (0.572 - 0.913)	0.007	0.876 (0.683 - 1.124)	0.295
Q4	0.750 (0.647 - 0.870)	< 0.001	0.598 (0.472 - 0.756)	< 0.001	0.588 (0.446 - 0.775)	< 0.001
<i>P</i> for trend	< 0.001		< 0.001		< 0.001	

HDL-C: high density lipoprotein cholesterol; SUI: stress urinary incontinence; OR: odds ratio; CI: confidence intervals.

All model were adjusted for age, race, marital status, PIR, education, BMI, hypertension, diabetes, alcohol use, smoke,vigorous recreational activities, coronary heart disease, stroke, cancer/malignancy, TC, ALT, AST, ALB, SCr, BUN, TBil.

P-value < 0.05 was considered significant.

Table S9. Significant SNPs with genome-wide associations ($P < 5 \times 10^{-8}$) for HDL-C.

SNP	Chromosome	Position	Effect Allele	Other Allele	β	Standard Error	Effector Allele Frequency	P -value	Sample Size	R ²	F	Steiger direction	Steiger P
rs117199990	8	19 96 34 05	T	C	0 . 1 9	0.02	0.1302	6. 22 E-14	97 96	0.0 091 288 41	90. 231 574 11	TRU E	4. 38 E-19
rs1532085	15	58 39 11 67	G	A	- 0 . 1	0.02	0.6352	1. 64 E-11	97 96	0.0 025 455 66	24. 994 895 88	TRU E	2. 83 E-06
rs183130	16	56 95 74 51	T	C	0 . 2 4	0.02	0.2932	3. 22 E-54	97 96	0.0 144 869 22	143 .97 060 02	TRU E	1. 93 E-29
rs75911530	16	57 01 52 25	A	G	- 0 . 2 5	0.04	0.0278	1. 65 E-08	97 96	0.0 039 717 59	39. 054 524 81	TRU E	3. 61 E-09
rs964184	11	11 67 78 20 1	C	G	0 . 1 4	0.02	0.838	2. 00 E-10	97 96	0.0 049 771 46	48. 989 995 92	TRU E	1. 48 E-11

HDL-C: high density lipoprotein cholesterol; SNP: single nucleotide polymorphism.

Table S10. Sensitivity analysis in MR analysis.

Exposure	Outcome	Method	Cochran's Q statistic (heterogeneity <i>P</i>)	MR Egger intercept(pleiotropy <i>P</i>)	MR PRESSO <i>P</i>
HDL-C	SUI	MR	0.565924841	0.710369767	0.767
		IVW	0.699366476	0.710369767	0.767

HDL-C: high density lipoprotein cholesterol; SUI: stress urinary incontinence; MR: mendelian randomization; IVW: inverse variance weighting.

Table S11. MR leave-one-out sensitivity analysis for HDL-C on SUI.

Exposure	Outcome	SNP	β	Standard Error	<i>P</i> -value
HDL-C	SUI	rs117199990	-0.153702924	0.068353874	0.024535719
		rs1532085	-0.169656623	0.066781493	0.011070244
		rs183130	-0.162245977	0.095615968	0.08972498
		rs75911530	-0.167799754	0.06594551	0.010942765
		rs964184	-0.201253826	0.066591978	0.002509503
		All	-0.172122207	0.063148074	0.006416682

HDL-C: high density lipoprotein cholesterol; SUI: stress urinary incontinence; MR: mendelian randomization; SNP: single nucleotide polymorphism.

Table S12. Significant SNPs with genome-wide associations ($P < 1 \times 10^{-6}$) for SUI.

SNP	Chr	Position	Effect Allele	Other Allele	β	Standard Error	Effect Size (Allele Frequency)	P -value	Sample Size	R^2	F	Steiger direction	Steiger P
rs10774741	12	11466585	A	G	-0.1222	0.0196	0.361999362	5.38E-10	217598	0.0001	38.534	TRU E	0.4242
rs146853096	12	20686482	C	T	0.3550	0.0720	0.018425883	8.16E-07	217598	0.0001	24.319	TRU E	0.4078
rs170630	1	7906702	G	A	0.1984	0.0393	0.062918281	4.53E-07	217598	0.0001	25.455	TRU E	0.4709
rs28662360	2	28208920	G	A	-0.1241	0.0228	0.780375604	5.29E-08	217598	0.0001	29.606	TRU E	0.5221
rs3858460	11	3249247	T	C	-0.1223	0.0237	0.199513593	2.50E-07	217598	0.0001	26.598	TRU E	0.2844
rs4662336	2	14426644	T	G	-0.1200	0.0218	0.732766566	3.70E-08	217598	0.0001	30.298	TRU E	0.2533
rs75239609	12	24552189	T	C	0.2188	0.0429	0.05120911	3.54E-07	217598	0.0001	25.930	FAL SE	0.8681
rs78746179	17	44204606	T	C	-0.2210	0.0423	0.07136733	1.73E-07	217598	0.0001	27.308	TRU E	0.515

SUI: stress urinary incontinence; SNP: single nucleotide polymorphism.

Table S13. Causality and sensitivity analysis of SUI and HDL-C in reverse two-sample MR analysis.

Exposure	Outcome	SNP	Methods	β	Standard Error	<i>P</i> -value	OR
SUI	HDL-C	7	MR Egger	-0.072843977	0.183987042	0.708494719	0.929745881
			Weighted median	0.000534605	0.074930292	0.994307385	1.000534748
			IVW	0.015253208	0.060401196	0.800630222	1.015370132
			Simple mode	0.014108397	0.10623186	0.898687637	1.01420839
			Weighted mode	0.008616366	0.100860204	0.93469984	1.008653594
			Cochran's Q statistic (heterogeneity <i>P</i>)		MR Egger intercept(pleiotropy <i>P</i>)		MR PRESS <i>O P</i>
				0.988884214	0.633770937		0.986

HDL-C: high density lipoprotein cholesterol; SUI: stress urinary incontinence; MR: mendelian randomization; IVW: inverse variance weighting; SNP: single nucleotide polymorphism.