ACCSCIENCE PUBLISHING

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ORIGINAL RESEARCH ARTICLE

The causal relationship between depression and chronic pancreatitis: A Mendelian randomization study

Supplementary File

Table S1. Information on the traits involved in this study

Traits	Study	Ancestry	Cases	Sample size	PubMed ID/Source
Major depression disorder	Psychiatric Genomics Consortium, UK Biobank	European	170,756	500,199	30718901
Chronic pancreatitis	The FinnGen Study	European	3,320	392,423	https://risteys.finregistry.fi/endpoints/K11_CHRONPANC
Smoking initiation	GWAS and Sequencing Consortium of Alcohol and Nicotine use	European	311,629	607,291	30643251
Alcoholic drinks per week	GWAS and Sequencing Consortium of Alcohol and Nicotine use	European	/	335,394	30643251
Body mass index	Neale Lab	European	/	336,107	https://github.com/Nealelab/UK_Biobank_GWAS
Triglycerides	UK Biobank	European	/	441,016	32203549
Type 2 diabetes	Open GWAS IEU	European	61,714	655,666	30054458

Notes: The endpoint definitions and registry filters of chronic pancreatitis included the International ICD-8, ICD-9, and ICD-10 codes (K86.00, K86.01, K86.08, and K86.1).[1] Depression was defined as follows: For UK Biobank,[2] the diagnosis of depression was based on participants' responses to questions such as "Have you ever seen a general practitioner for nerves, anxiety, tension, or depression?" or "Have you ever seen a psychiatrist for nerves, anxiety, tension, or depression?" Participants identified with bipolar disorder, schizophrenia, or personality disorder were excluded, following the method outlined by Smith *et al*.[3] For the PGC, the classical approach (PGC29, GenScot), treatment registration (iPSYCH, GERA), and multiple methods (deCODE, UK Biobank) were employed to evaluate all cases of major depression.[4]

Abbreviations: GWAS: Genome-wide association study; IEU: Integrative Epidemiology Unit; ICD: Classification of diseases; PGC: Psychiatric genomics consortium.

Table S2. Databases and characteristics of potential mediators

Exposures	GWAS ID	SNPs (p=5e^{-08}, R^2=0.001, kb=10,000)	Population (year)	Sample size	Consortium	PubMed ID
Life and society						
Smoking initiation	ieu-b-4877	193	European (2019)	607,291	GSCAN	30643251
Cigarettes per day	ieu-b-25	23	European (2019)	337,334	GSCAN	30643251
Ever versus never smoked	ieu-a-962	/	European (2010)	74,035	TAG	20418890
Alcoholic drinks per week	ieu-b-73	35	European (2019)	335,394	GSCAN	30643251
Average total household income before tax	ukb-b-7408	48	European (2018)	397,751	MRC-IEU	/
Disease factors						
Celiac disease	ieu-a-1058	15	European (2011)	24,269	/	22057235
Inflammatory bowel disease	ieu-a-294	134	European (2015)	65,642	IIBDGC	26192919
Coronary artery disease	ebi-a-GCST90013864	50	European (2021)	352,063	/	34017140
Anti-Epstein-Barr virus IgG seropositivity	ebi-a-GCST90006897	47 (p=1e^{-05})	European (2020)	8,735	/	33204752
Anorexia nervosa	ieu-a-1186	34 (p=1e^{-05})	European (2017)	14,477	PGC-ED	28494655
Biochemical indicators						
C-reactive protein	ieu-b-35	57	European (2018)	204,402	/	30388399
Testosterone	ukb-d-30850_irnt	100	European (2018)	/	Neale lab	/
Lipid and glucose metabolism						
Triglycerides	ieu-b-111	313	European (2020)	441,016	UK Biobank	32203549
Type 2 diabetes	ebi-a-GCST006867	118	European (2018)	655,666	/	30054458
Obesity traits						
Body mass index	ukb-a-248	315	European (2017)	336,107	Neale Lab	/
Whole body fat mass	ukb-a-265	290	European (2017)	330,762	Neale Lab	/
Waist-to-hip ratio	ieu-a-79	38	European (2015)	210,082	GIANT	25673412
Overweight	ieu-a-93	14	European (2013)	158,855	GIANT	23563607

Abbreviations: GIANT: Genetic investigation of anthropometric traits; GSCAN: GWAS and sequencing consortium of alcohol and nicotine use; GWAS: Genome-wide association study; IgG: Immunoglobulin G; IIBDGC: The international inflammatory bowel disease genetics consortium; MRC-IEU: MRC integrative epidemiology unit; PGC-ED: Psychiatric genomics consortium eating disorders working group; SNP: Single-nucleotide polymorphism; TAG: Tobacco and genetics consortium.

Table S3. Exclusion of SNPs associated with confounding factors

Exposure	Potential confounders	Excluded SNPs
Depression	Smoking, alcohol, household income, body mass index	rs3099439, rs10235664, rs2568958, rs9831249, rs13037326
Chronic pancreatitis	Smoking, alcohol, household income, body mass index	/

Abbreviation: SNP: single-nucleotide polymorphism.

Table S4. Instrumental variables of depression in the two-sample bidirectional Mendelian randomization analysis

SNP	Effect_allele	Other_allele	Beta	Se	Pval	Eaf	*F*
rs1021363	A	G	0.0300	0.0045	2.29E-11	0.36	44.44
rs10501696	A	G	0.0295	0.0044	2.89E-11	0.51	44.95
rs10913112	T	C	−0.0262	0.0045	4.53E-09	0.38	33.90
rs12631196	A	G	0.0241	0.0044	3.28E-08	0.42	30.00
rs12919291	C	G	0.0327	0.0055	3.09E-09	0.19	35.35
rs12967143	C	G	−0.0345	0.0047	2.53E-13	0.70	53.88
rs1367635	T	C	−0.0253	0.0043	4.35E-09	0.49	34.62
rs150186873	A	C	−0.0704	0.0120	4.51E-09	0.97	34.42
rs150346963	T	C	0.0283	0.0044	1.16E-10	0.41	41.37
rs17641524	T	C	−0.0300	0.0053	1.50E-08	0.21	32.04
rs1931388	A	G	0.0295	0.0044	1.68E-11	0.60	44.95
rs1950829	A	G	0.0297	0.0043	4.74E-12	0.48	47.71
rs198457	T	C	−0.0315	0.0056	1.90E-08	0.19	31.64
rs2111592	A	G	0.0263	0.0046	1.35E-08	0.31	32.69
rs2214123	A	G	0.0261	0.0045	8.56E-09	0.35	33.64
rs2418449	T	C	0.0281	0.0048	4.25E-09	0.72	34.27
rs28541419	C	G	0.0292	0.0052	1.76E-08	0.77	31.53
rs30266	A	G	0.0366	0.0046	1.43E-15	0.33	63.31
rs354155	C	G	−0.0449	0.0075	1.75E-09	0.09	35.84
rs3807865	A	G	0.0310	0.0044	1.09E-12	0.41	49.64
rs4141983	T	C	0.0264	0.0046	9.69E-09	0.67	32.94
rs4799949	T	C	−0.0292	0.0046	1.40E-10	0.67	40.29
rs4936275	T	C	0.0278	0.0044	3.35E-10	0.62	39.92
rs508502	T	C	−0.0264	0.0048	3.56E-08	0.30	30.25
rs59082935	T	C	0.0363	0.0066	3.07E-08	0.13	30.25
rs61914045	A	G	0.0309	0.0054	7.96E-09	0.20	32.74
rs62535714	A	G	0.0339	0.0058	4.69E-09	0.16	34.16
rs66511648	T	C	−0.0297	0.0048	6.03E-10	0.72	38.29
rs6656912	T	C	−0.0252	0.0043	6.50E-09	0.43	34.34
rs67981811	C	G	0.0620	0.0070	1.14E-18	0.89	78.45
rs7152906	T	C	−0.0258	0.0043	1.87E-09	0.48	36.00
rs7241572	A	G	0.0323	0.0054	2.43E-09	0.20	35.78
rs72948506	A	G	0.0265	0.0047	1.72E-08	0.30	31.79
rs754287	A	T	−0.0289	0.0045	1.31E-10	0.37	41.24
rs7551758	T	G	−0.0283	0.0043	5.11E-11	0.47	43.31
rs76954012	A	T	0.0412	0.0074	2.41E-08	0.09	31.00
rs7725715	A	G	0.029	0.0043	1.61E-11	0.53	45.48
rs9364755	A	G	−0.0283	0.0051	3.49E-08	0.77	30.79
rs9529218	T	C	−0.0340	0.0054	2.23E-10	0.20	39.64
rs9536381	T	C	0.0255	0.0046	2.62E-08	0.33	30.73
rs9831648	T	G	−0.0292	0.0052	1.59E-08	0.77	31.53

Abbreviations: Eaf: Effect allele frequency; Pval: *P*-value; Se: Standard error; SNP: Single-nucleotide polymorphism.

Table S5. Instrumental variables of chronic pancreatitis in the two-sample bidirectional Mendelian randomization analysis

SNP	Effect_allele	Other_allele	Beta	Se	Pval	Eaf	*F*
rs10755490	G	A	0.1131	0.0247	4.63E-06	0.54	20.98
rs10847506	T	C	0.1426	0.0312	4.95E-06	0.81	20.86
rs10988705	A	G	−0.3682	0.0827	8.53E-06	0.02	19.81
rs11105218	A	G	−0.3873	0.0861	6.79E-06	0.02	20.25
rs113535611	A	T	0.3182	0.0709	7.26E-06	0.04	20.12
rs114276100	C	T	0.2742	0.0615	8.24E-06	0.05	19.88
rs115343810	G	A	0.5087	0.0774	5.02E-11	0.03	43.17
rs115428418	T	C	−0.3408	0.0655	1.99E-07	0.03	27.05
rs116180834	A	G	0.4298	0.0809	1.07E-07	0.03	28.24
rs12438425	C	T	0.1149	0.0255	6.51E-06	0.39	20.33
rs180841391	T	G	0.3631	0.0758	1.64E-06	0.03	22.97
rs191041365	T	C	0.6508	0.0680	1.04E-21	0.04	91.63
rs2099700	A	G	0.1796	0.0389	3.96E-06	0.12	21.28
rs4554113	G	A	0.1371	0.0301	5.17E-06	0.79	20.77
rs4726575	G	T	0.1668	0.0257	8.35E-11	0.65	42.17
rs6501457	T	C	−0.1261	0.0271	3.25E-06	0.70	21.66
rs671108	C	G	−0.1424	0.0297	1.68E-06	0.21	22.94
rs7043518	G	A	0.1121	0.0249	6.42E-06	0.45	20.36
rs72883660	C	T	0.1328	0.0295	6.72E-06	0.23	20.27
rs74353298	T	C	0.4828	0.1085	8.52E-06	0.02	19.82
rs77940133	C	G	0.2993	0.0611	9.56E-07	0.05	24.02
rs786398	A	G	0.1136	0.0256	9.01E-06	0.65	19.71
rs940936	T	A	−0.2095	0.0465	6.50E-06	0.92	20.34
rs9635812	A	G	−0.1332	0.0279	1.86E-06	0.26	22.73
rs9842794	T	G	0.1156	0.0247	2.80E-06	0.48	21.95

Abbreviations: Eaf: Effect allele frequency; Pval: *P*-value; SE: Standard error; SNP: Single-nucleotide polymorphism.

Table S6. *F* statistics for the MR analyses

Parameter	Two-sample bidirectional MR analyses			Multivariable MR analyses				
Exposure	Depression	Chronic pancreatitis	Depression	Depression				
Outcome	Chronic pancreatitis	Depression	Chronic pancreatitis	Chronic pancreatitis				
Adjustment	-	-	-	Smoking initiation	Type 2 diabetes	Triglycerides	Body mass index	Alcoholic drinks per week
F-statistics	1,579.12	653.32	1,579.12	16.25[a]	12.23[a]	7.47[a]	8.12[a]	25.62[a]

Notes: The *F*-statistics in two-sample MR represent the total *F*-statistics, while the *F*-statistics for each single-nucleotide polymorphism are reported in Table S1. The conditional *F*-statistics "*a*" for depression were calculated by the Multivariable MR package.
Abbreviation: MR: Mendelian randomization.

Table S7. Primary and sensitivity analyses of MR examining the effect of depression on chronic pancreatitis

Method	SNP	*P*-value	OR	OR_ lci95	OR_ uci95
Inverse variance weighted	41	0.03	1.39	1.03	1.86
Weighted median	41	0.03	1.56	1.04	2.35
MR-Egger	41	0.83	1.23	0.20	7.46
Simple mode	41	0.27	1.63	0.70	3.83
Weighted mode	41	0.19	1.78	0.76	4.18
Heterogeneity	Cochrane's Q=40.81; *p*het=0.44				
Pleiotropy	*p*ple=0.89				

Abbreviations: lci: Lower confidence interval; nSNP: Number of single-nucleotide polymorphism; OR: Odds radio; uci: Upper confidence interval; MR: Mendelian randomization.

Table S8. Primary and sensitivity analyses of MR examining the effect of chronic pancreatitis on depression

Method	SNP	*P*-value	OR	OR_ lci95	OR_ uci95
Inverse variance weighted	25	0.63	1.00	0.99	1.02
Weighted median	25	0.72	1.00	0.97	1.02
MR-Egger	25	0.71	1.01	0.97	1.05
Simple mode	25	0.63	0.99	0.95	1.03
Weighted mode	25	0.42	0.99	0.96	1.02
Heterogeneity	Cochrane's Q=26.34, *P*=0.34				
Pleiotropy	*P*=0.85				

Abbreviations: lci: Lower confidence interval; SNP: Single-nucleotide polymorphism; OR, odds radio; uci: Upper confidence interval; MR: Mendelian randomization.

Table S9. Instrumental variables for all multivariable Mendelian randomization analyses

	Adjusted for alcoholic drinks per week					
SNP	**Beta.mdd**	**Beta.adpw**	**Pval.mdd**	**Pval.adpw**	**Se.mdd**	**Se.adpw**
rs10085696	−0.0045	−0.0161	4.19E-01	1.24E-10	0.0055	0.0025
rs1021363	0.0300	0.0024	2.29E-11	2.42E-01	0.0045	0.0020
rs10235664	0.0270	0.0042	4.68E-08	5.82E-02	0.0049	0.0022
rs10501696	0.0295	0.0055	2.89E-11	4.60E-03	0.0044	0.0019
rs10913112	−0.0262	0.0015	4.53E-09	4.43E-01	0.0045	0.0020
rs11860773	−0.0150	−0.0150	8.35E-10	8.35E-10	0.0024	0.0024
rs1260326	0.0039	0.0238	3.69E-01	3.33E-33	0.0044	0.0020
rs12919291	0.0327	0.0042	3.09E-09	9.17E-02	0.0055	0.0025
rs12967143	−0.0345	0.0043	2.53E-13	4.37E-02	0.0047	0.0021
rs13037326	0.0310	−0.0005	2.40E-10	8.12E-01	0.0049	0.0022
rs13107325	0.0242	−0.0365	3.88E-03	1.23E-20	0.0084	0.0039
rs13332432	−0.0020	0.0140	6.72E-01	5.94E-11	0.0048	0.0021
rs1367635	−0.0253	−0.0036	4.35E-09	6.17E-02	0.0043	0.0019
rs1387766	0.0007	−0.0108	8.81E-01	4.79E-08	0.0044	0.0020
rs150186873	−0.0704	−0.0033	4.51E-09	5.45E-01	0.0120	0.0054
rs150346963	0.0283	−0.0001	1.16E-10	9.77E-01	0.0044	0.0020
rs153106	0.0018	−0.0136	6.77E-01	3.63E-12	0.0044	0.0020
rs16854020	−0.0058	0.0181	3.69E-01	4.82E-10	0.0065	0.0029
rs17542254	−0.0079	0.0131	9.83E-02	8.96E-10	0.0048	0.0021
rs17641524	−0.0300	−0.0001	1.50E-08	9.81E-01	0.0053	0.0024
rs1931388	0.0295	−0.0018	1.68E-11	3.51E-01	0.0044	0.0020
rs1950829	0.0297	−0.0015	4.74E-12	4.28E-01	0.0043	0.0019
rs198457	−0.0315	−0.0062	1.90E-08	1.33E-02	0.0056	0.0025
rs2049045	0.0175	−0.0138	1.49E-03	3.97E-08	0.0055	0.0025
rs2111592	0.0263	−0.0011	1.35E-08	5.92E-01	0.0046	0.0021
rs2214123	0.0261	−0.0013	8.56E-09	5.29E-01	0.0045	0.0020
rs2299409	−0.0061	−0.0106	1.54E-01	4.80E-08	0.0043	0.0019
rs2418449	0.0281	0.0010	4.25E-09	6.47E-01	0.0048	0.0021
rs2568958	0.0382	−0.0074	2.90E-18	1.71E-04	0.0044	0.0020
rs28541419	0.0292	−0.0007	1.76E-08	7.67E-01	0.0052	0.0023
rs28601761	0.0024	0.0113	5.82E-01	7.60E-09	0.0044	0.0020
rs28680958	−0.0209	−0.0136	6.47E-05	9.78E-09	0.0052	0.0024
rs28712821	−0.0124	0.0283	4.88E-03	1.10E-46	0.0044	0.0020
rs28732378	−0.0114	−0.0167	2.02E-02	2.24E-14	0.0049	0.0022
rs28929474	−0.0343	−0.0477	2.57E-02	2.39E-11	0.0154	0.0071
rs30266	0.0366	0.0012	1.43E-15	5.55E-01	0.0046	0.0021
rs3099439	−0.0241	0.0072	2.78E-08	1.99E-04	0.0043	0.0019
rs331939	−0.0143	−0.0119	1.50E-03	4.50E-09	0.0045	0.0020
rs34121753	−0.0040	0.0111	3.59E-01	1.39E-08	0.0044	0.0020
rs354155	−0.0449	−0.0037	1.75E-09	2.62E-01	0.0075	0.0033
rs3807865	0.0310	−0.0017	1.09E-12	3.91E-01	0.0044	0.0020
rs4141983	0.0264	−0.0009	9.69E-09	6.65E-01	0.0046	0.0021

(Cont'd...)

Table S9. ***(Continued)***

Adjusted for alcoholic drinks per week						
SNP	**Beta.mdd**	**Beta.adpw**	**Pval.mdd**	**Pval.adpw**	**Se.mdd**	**Se.adpw**
rs4309187	−0.0256	0.0148	3.13E-08	1.37E-12	0.0046	0.0021
rs4752999	−0.0191	−0.0146	3.26E-05	2.03E-12	0.0046	0.0021
rs4799949	−0.0292	−0.0032	1.40E-10	1.14E-01	0.0046	0.0021
rs4936275	0.0278	0.0135	3.35E-10	1.63E-11	0.0044	0.0020
rs494904	0.0116	0.0151	8.23E-03	1.41E-14	0.0044	0.0020
rs508502	−0.0264	−0.0031	3.56E-08	1.38E-01	0.0048	0.0021
rs55872084	−0.0027	0.0127	5.95E-01	1.98E-08	0.0050	0.0023
rs55932213	0.0065	0.0125	1.94E-01	1.80E-08	0.0050	0.0022
rs59082935	0.0363	0.0026	3.07E-08	3.65E-01	0.0066	0.0029
rs6106989	−0.0017	0.0109	7.06E-01	3.81E-08	0.0044	0.0020
rs61914045	0.0309	0.0018	7.96E-09	4.60E-01	0.0054	0.0024
rs62535714	0.0339	−0.0051	4.69E-09	4.72E-02	0.0058	0.0026
rs66511648	−0.0297	−0.0052	6.03E-10	1.49E-02	0.0048	0.0021
rs6656912	−0.0252	0.0021	6.50E-09	2.93E-01	0.0043	0.0019
rs6739804	0.0071	−0.0130	1.28E-01	4.72E-10	0.0046	0.0021
rs676388	0.0000	0.0151	9.99E-01	5.49E-15	0.0043	0.0019
rs67981811	0.0620	−0.0041	1.14E-18	2.03E-01	0.0070	0.0032
rs7152906	−0.0258	−0.0037	1.87E-09	5.26E-02	0.0043	0.0019
rs7241572	0.0323	−0.0027	2.43E-09	2.63E-01	0.0054	0.0024
rs72948506	0.0265	−0.0023	1.72E-08	2.83E-01	0.0047	0.0021
rs75120545	0.0108	−0.0328	4.04E-01	7.59E-09	0.0129	0.0057
rs754287	−0.0289	0.0043	1.31E-10	3.27E-02	0.0045	0.0020
rs7551758	−0.0283	0.0046	5.11E-11	1.77E-02	0.0043	0.0019
rs76954012	0.0412	0.0068	2.41E-08	4.21E-02	0.0074	0.0033
rs7725715	0.0290	−0.0041	1.61E-11	3.62E-02	0.0043	0.0019
rs78234152	0.0067	0.0277	3.44E-01	2.18E-19	0.0071	0.0031
rs79616692	0.0048	0.0188	4.95E-01	2.38E-09	0.0070	0.0032
rs9364755	−0.0283	−0.0048	3.49E-08	3.69E-02	0.0051	0.0023
rs9529218	−0.0340	0.0014	2.23E-10	5.67E-01	0.0054	0.0024
rs9536381	0.0255	0.0034	2.62E-08	9.57E-02	0.0046	0.0021
rs962961	−0.0171	−0.0122	1.87E-04	2.78E-09	0.0046	0.0021
rs9831249	−0.0247	0.0022	1.41E-08	2.60E-01	0.0044	0.0020
rs9831648	−0.0292	−0.0059	1.59E-08	1.02E-02	0.0052	0.0023
Adjusted for body mass index						
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs10100245	0.0019	0.0206	6.63E-01	1.64E-17	0.0043	0.0024
rs10187101	−0.0026	−0.0157	5.54E-01	3.54E-10	0.0045	0.0025
rs1021363	0.0300	−0.0026	2.29E-11	2.94E-01	0.0045	0.0025
rs10235664	0.0270	−0.0199	4.68E-08	1.00E-12	0.0049	0.0028
rs10404726	−0.0065	−0.0199	1.36E-01	1.60E-16	0.0044	0.0024
rs10465231	−0.0053	0.0171	2.25E-01	1.65E-12	0.0044	0.0024
rs10501696	0.0295	−0.0088	2.89E-11	3.68E-04	0.0044	0.0025

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Table S9. ***(Continued)***

	Adjusted for body mass index					
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs1064213	−0.0042	0.0162	3.35E-01	1.70E-11	0.0043	0.0024
rs10749233	−0.0061	−0.0190	2.33E-01	2.75E-11	0.0051	0.0028
rs10788493	0.0050	0.0137	2.67E-01	1.53E-08	0.0045	0.0024
rs10803762	0.0154	0.0155	8.60E-04	2.11E-09	0.0046	0.0026
rs10805383	0.0028	0.0169	5.22E-01	1.99E-12	0.0043	0.0024
rs10865612	−0.0154	−0.0231	5.97E-04	3.80E-20	0.0045	0.0025
rs10898330	−0.0043	−0.0143	3.19E-01	3.39E-09	0.0043	0.0024
rs10913112	−0.0262	−0.0061	4.53E-09	1.40E-02	0.0045	0.0025
rs10938397	−0.0053	0.0290	2.18E-01	9.55E-33	0.0043	0.0024
rs10995427	−0.0043	−0.0165	3.47E-01	5.00E-11	0.0045	0.0025
rs11012732	−0.0049	0.0238	2.83E-01	1.03E-20	0.0046	0.0026
rs11078883	−0.0011	0.0157	8.13E-01	5.96E-10	0.0045	0.0025
rs11084554	−0.0146	−0.0216	1.45E-02	6.58E-11	0.0060	0.0033
rs11099020	−0.0052	−0.0153	2.44E-01	1.06E-09	0.0045	0.0025
rs11150745	−0.0080	−0.0210	8.25E-02	4.13E-16	0.0046	0.0026
rs111640872	0.0041	0.0206	3.68E-01	7.72E-16	0.0046	0.0026
rs11223641	−0.0126	−0.0191	4.08E-02	2.61E-08	0.0062	0.0034
rs11264489	−0.0017	0.0141	7.09E-01	1.93E-08	0.0045	0.0025
rs112693590	−0.0051	−0.0329	6.08E-01	6.80E-09	0.0100	0.0057
rs1127100	−0.0043	0.0165	3.40E-01	6.20E-11	0.0046	0.0025
rs113182412	−0.0065	−0.0194	2.76E-01	3.68E-09	0.0059	0.0033
rs113230003	−0.0152	−0.0198	2.67E-03	7.56E-13	0.0051	0.0028
rs113603865	0.0001	0.0197	9.85E-01	2.42E-11	0.0053	0.0030
rs11515071	−0.0064	−0.0228	1.56E-01	8.84E-20	0.0045	0.0025
rs11642015	0.0102	0.0724	1.93E-02	6.40E-192	0.0044	0.0024
rs11650012	−0.0114	0.0186	4.84E-02	7.37E-09	0.0058	0.0032
rs11655587	0.0020	−0.0196	6.48E-01	5.26E-15	0.0045	0.0025
rs11742930	−0.0045	0.0143	3.04E-01	3.84E-09	0.0043	0.0024
rs11757278	0.0098	−0.0158	3.52E-02	1.42E-09	0.0047	0.0026
rs11761411	−0.0153	−0.0185	1.08E-02	3.17E-08	0.0060	0.0033
rs117632017	0.0019	0.0364	8.74E-01	1.67E-08	0.0120	0.0064
rs11782074	0.0012	0.0145	7.86E-01	7.37E-09	0.0045	0.0025
rs11856579	−0.0035	−0.0198	4.67E-01	2.91E-13	0.0049	0.0027
rs12024554	0.0016	−0.0163	7.57E-01	8.75E-09	0.0050	0.0028
rs12042959	0.0050	−0.0206	4.10E-01	1.96E-09	0.0061	0.0034
rs12049202	−0.0057	0.0218	2.90E-01	3.91E-13	0.0054	0.0030
rs12140153	−0.0003	−0.0318	9.74E-01	2.25E-14	0.0076	0.0042
rs12144626	0.0179	−0.0172	4.18E-05	1.87E-12	0.0044	0.0024
rs12477385	−0.0055	−0.0173	2.93E-01	1.99E-09	0.0052	0.0029
rs12479357	−0.0123	0.0179	6.00E-03	8.71E-13	0.0045	0.0025
rs12614861	0.0018	0.0152	6.98E-01	1.53E-09	0.0045	0.0025

(Cont'd...)

Table S9. ***(Continued)***

	Adjusted for body mass index					
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs12622280	0.0024	−0.0187	6.85E-01	1.53E-08	0.0059	0.0033
rs12631196	0.0241	0.0131	3.28E-08	8.00E-08	0.0044	0.0024
rs12662900	0.0027	−0.0169	5.68E-01	2.85E-10	0.0048	0.0027
rs12679106	−0.0037	−0.0220	4.36E-01	1.38E-16	0.0048	0.0027
rs1286138	−0.0130	0.0181	4.99E-03	1.92E-12	0.0046	0.0026
rs12877270	−0.0027	0.0169	5.33E-01	4.15E-12	0.0043	0.0024
rs12881629	−0.0108	0.0240	1.78E-01	4.04E-08	0.0080	0.0044
rs12885458	0.0152	−0.0156	3.98E-04	8.40E-11	0.0043	0.0024
rs12919291	0.0327	−0.0068	3.09E-09	2.67E-02	0.0055	0.0031
rs1296328	−0.0029	−0.0190	5.04E-01	5.86E-15	0.0044	0.0024
rs12967143	−0.0345	0.0030	2.53E-13	2.57E-01	0.0047	0.0026
rs13037326	0.0310	0.0036	2.40E-10	1.88E-01	0.0049	0.0027
rs13062093	−0.0079	0.0171	7.51E-02	7.42E-12	0.0044	0.0025
rs13076052	−0.0007	0.0161	8.81E-01	2.65E-09	0.0049	0.0027
rs13135092	−0.0252	0.0501	1.67E-03	2.60E-30	0.0080	0.0044
rs13174863	−0.0031	0.0250	6.07E-01	2.08E-13	0.0061	0.0034
rs1320903	−0.0057	0.0220	2.12E-01	1.52E-17	0.0046	0.0026
rs1327259	−0.0100	−0.0140	2.30E-02	1.54E-08	0.0044	0.0025
rs1342391	−0.0104	0.0159	2.73E-02	5.83E-10	0.0047	0.0026
rs13427822	0.0051	−0.0199	3.00E-01	3.05E-13	0.0049	0.0027
rs1367635	−0.0253	−0.0002	4.35E-09	9.38E-01	0.0043	0.0024
rs1411432	−0.0078	0.0249	1.61E-01	1.02E-15	0.0056	0.0031
rs1441264	0.0014	0.0206	7.60E-01	1.39E-16	0.0045	0.0025
rs1458156	0.0064	0.0138	1.35E-01	9.99E-09	0.0043	0.0024
rs1477290	−0.0234	0.0335	1.97E-04	2.51E-21	0.0063	0.0035
rs147730268	0.0033	−0.0361	6.81E-01	7.38E-17	0.0079	0.0043
rs150186873	−0.0704	0.0130	4.51E-09	5.27E-02	0.0120	0.0067
rs150346963	0.0283	−0.0009	1.16E-10	7.28E-01	0.0044	0.0024
rs1582931	0.0047	−0.0149	2.83E-01	8.97E-10	0.0043	0.0024
rs16846140	−0.0141	0.0162	1.96E-03	1.98E-10	0.0046	0.0025
rs16916303	−0.0066	−0.0207	3.25E-01	3.01E-08	0.0067	0.0037
rs16932761	−0.0065	−0.0180	1.94E-01	1.04E-10	0.0050	0.0028
rs16975459	0.0075	0.0240	2.56E-01	7.84E-11	0.0066	0.0037
rs17014332	−0.0050	0.0180	3.43E-01	9.16E-10	0.0053	0.0029
rs17024393	−0.0332	0.0675	1.27E-02	6.45E-19	0.0133	0.0076
rs17058884	−0.0041	−0.0318	6.89E-01	4.27E-08	0.0102	0.0058
rs17085463	0.0056	−0.0148	2.30E-01	1.19E-08	0.0046	0.0026
rs17342242	0.0115	−0.0162	2.50E-02	1.71E-08	0.0051	0.0029
rs17399739	0.0052	0.0262	5.57E-01	2.76E-08	0.0088	0.0047
rs17641524	−0.0300	0.0132	1.50E-08	8.35E-06	0.0053	0.0030
rs17716502	0.0037	−0.0223	4.91E-01	8.16E-14	0.0054	0.0030

(Cont'd...)

Table S9. ***(Continued)***

	Adjusted for body mass index					
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs17731998	−0.0037	0.0162	4.45E-01	2.26E-09	0.0048	0.0027
rs1788808	−0.0074	−0.0183	8.62E-02	2.67E-14	0.0043	0.0024
rs1884897	0.0037	0.0213	4.07E-01	1.15E-17	0.0045	0.0025
rs1901241	−0.0013	0.0193	8.24E-01	4.54E-09	0.0058	0.0033
rs1919243	0.0017	0.0139	7.03E-01	1.19E-08	0.0044	0.0024
rs1931388	0.0295	−0.0101	1.68E-11	4.05E-05	0.0044	0.0025
rs1941706	−0.0079	0.0139	6.78E-02	7.36E-09	0.0043	0.0024
rs1949204	−0.0029	0.0167	5.69E-01	3.50E-09	0.0050	0.0028
rs1950829	0.0297	−0.0024	4.74E-12	3.09E-01	0.0043	0.0024
rs198457	−0.0315	0.0041	1.90E-08	1.87E-01	0.0056	0.0031
rs2035806	−0.0119	−0.0166	7.50E-03	7.47E-12	0.0044	0.0024
rs2046002	−0.0019	−0.0146	6.80E-01	6.24E-09	0.0045	0.0025
rs2111592	0.0263	−0.0054	1.35E-08	3.71E-02	0.0046	0.0026
rs2121058	0.0071	−0.0238	1.64E-01	8.49E-17	0.0051	0.0029
rs2135745	0.0128	−0.0168	1.02E-02	1.85E-09	0.0050	0.0028
rs215634	0.0091	−0.0148	4.07E-02	2.45E-09	0.0044	0.0025
rs2192649	−0.0105	0.0137	1.47E-02	1.54E-08	0.0043	0.0024
rs2214123	0.0261	−0.0038	8.56E-09	1.32E-01	0.0045	0.0025
rs2234458	−0.0080	−0.0206	7.54E-02	1.35E-16	0.0045	0.0025
rs2292238	−0.0049	−0.0177	2.69E-01	4.83E-13	0.0044	0.0024
rs2307111	0.0021	−0.0290	6.33E-01	6.35E-32	0.0044	0.0025
rs2318543	0.0088	−0.0194	9.18E-02	3.12E-11	0.0052	0.0029
rs2384054	−0.0072	0.0350	9.22E-02	3.18E-48	0.0043	0.0024
rs2398861	−0.0031	0.0221	5.25E-01	1.25E-15	0.0049	0.0028
rs241460	−0.0053	−0.0205	2.55E-01	1.52E-15	0.0046	0.0026
rs2418449	0.0281	−0.0076	4.25E-09	4.59E-03	0.0048	0.0027
rs2425857	0.0123	−0.0136	4.63E-03	1.84E-08	0.0043	0.0024
rs2439823	−0.0007	0.0216	8.63E-01	3.81E-19	0.0043	0.0024
rs2450254	0.0068	−0.0141	1.28E-01	8.53E-09	0.0045	0.0024
rs2450445	0.0005	−0.0154	9.05E-01	2.02E-09	0.0046	0.0026
rs245775	−0.0082	0.0203	8.81E-02	5.65E-14	0.0048	0.0027
rs2470392	−0.0042	0.0145	3.73E-01	4.54E-08	0.0047	0.0027
rs2474898		0.0146	9.95E-01	7.03E-09	0.0045	0.0025
rs2482704	−0.0059	−0.0138	1.73E-01	1.30E-08	0.0044	0.0024
rs2568958	0.0382	0.0220	2.90E-18	2.79E-19	0.0044	0.0024
rs2606228	0.0030	−0.0156	5.11E-01	8.29E-10	0.0045	0.0025
rs2616192	0.0135	0.0141	3.29E-03	4.45E-08	0.0046	0.0026
rs2678204	−0.0032	0.0281	4.85E-01	1.65E-28	0.0046	0.0025
rs2711111	−0.0119	−0.0147	7.03E-03	2.12E-09	0.0044	0.0025
rs2725371	0.0056	−0.0181	2.32E-01	5.12E-12	0.0047	0.0026
rs273505	0.0051	0.0189	2.51E-01	9.27E-15	0.0044	0.0024

(Cont'd...)

Table S9. ***(Continued)***

	Adjusted for body mass index					
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs28447555	−0.0020	0.0185	7.28E-01	3.29E-09	0.0056	0.0031
rs28489620	−0.0068	−0.0147	1.55E-01	3.18E-08	0.0048	0.0027
rs28541419	0.0292	0.0013	1.76E-08	6.42E-01	0.0052	0.0029
rs2861685	0.0069	−0.0176	1.16E-01	4.52E-13	0.0044	0.0024
rs2962082	−0.0139	−0.0135	1.26E-03	1.88E-08	0.0043	0.0024
rs2975693	0.0023	0.0238	7.41E-01	7.85E-10	0.0070	0.0039
rs30266	0.0366	0.0114	1.43E-15	7.95E-06	0.0046	0.0026
rs3099439	−0.0241	0.0088	2.78E-08	2.89E-04	0.0043	0.0024
rs34045288	0.0017	0.0260	7.04E-01	1.72E-24	0.0046	0.0025
rs34095326	−0.0007	−0.0244	9.21E-01	1.16E-10	0.0068	0.0038
rs34361149	−0.0348	−0.0310	2.26E-10	2.50E-24	0.0055	0.0030
rs34373881	−0.0049	−0.0169	3.08E-01	3.28E-10	0.0048	0.0027
rs34774377	−0.0012	−0.0208	8.61E-01	1.63E-08	0.0068	0.0037
rs34811474	−0.0071	−0.0306	1.67E-01	5.30E-27	0.0051	0.0028
rs34966008	0.0047	−0.0199	2.84E-01	3.59E-16	0.0044	0.0024
rs35025195	0.0067	−0.0230	2.47E-01	9.68E-13	0.0058	0.0032
rs35193668	−0.0010	−0.0167	8.25E-01	2.55E-11	0.0045	0.0025
rs354155	−0.0449	0.0154	1.75E-09	2.61E-04	0.0075	0.0042
rs35626515	−0.0006	0.0266	8.97E-01	1.71E-27	0.0044	0.0024
rs35722922	−0.0024	−0.0165	5.87E-01	3.08E-11	0.0044	0.0025
rs357501	0.0069	0.0154	1.20E-01	6.24E-10	0.0045	0.0025
rs35851183	−0.0055	0.0168	2.20E-01	2.36E-11	0.0045	0.0025
rs35882248	0.0061	0.0192	1.86E-01	1.11E-13	0.0046	0.0026
rs36007635	−0.0104	−0.0200	9.64E-02	9.21E-09	0.0062	0.0035
rs362307	0.0218	0.0314	1.09E-02	7.74E-12	0.0086	0.0046
rs3759584	−0.0113	−0.0166	1.24E-02	4.20E-11	0.0045	0.0025
rs3802858	−0.0073	−0.0165	9.34E-02	1.22E-11	0.0043	0.0024
rs3803286	0.0124	−0.0208	6.35E-03	3.08E-16	0.0046	0.0025
rs3807865	0.0310	0.0080	1.09E-12	9.77E-04	0.0044	0.0024
rs3810291	0.0065	0.0297	1.58E-01	6.54E-31	0.0046	0.0026
rs3843540	0.0098	−0.0242	1.04E-01	8.89E-13	0.0060	0.0034
rs3844598	0.0104	0.0137	1.56E-02	1.32E-08	0.0043	0.0024
rs3861879	0.0061	0.0137	1.62E-01	1.62E-08	0.0044	0.0024
rs3897102	−0.0001	0.0147	9.89E-01	2.14E-09	0.0045	0.0025
rs390192	0.0047	−0.0154	2.75E-01	1.78E-10	0.0043	0.0024
rs4141983	0.0264	0.0058	9.69E-09	2.50E-02	0.0046	0.0026
rs4246657	0.0045	0.0170	3.19E-01	1.94E-11	0.0045	0.0025
rs4261944	−0.0043	0.0155	3.32E-01	6.22E-10	0.0045	0.0025
rs4402589	0.0102	0.0292	1.87E-02	1.68E-33	0.0043	0.0024
rs4467770	−0.0051	0.0157	2.90E-01	8.07E-09	0.0049	0.0027
rs4474229	−0.0048	−0.0159	2.76E-01	1.62E-10	0.0044	0.0025

(Cont'd...)

Table S9. ***(Continued)***

	Adjusted for body mass index					
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs4482463	0.0073	−0.0341	3.63E-01	6.43E-14	0.0081	0.0045
rs4502882	−0.0132	−0.0147	3.47E-03	5.91E-09	0.0045	0.0025
rs4595495	−0.0081	0.0137	6.36E-02	1.70E-08	0.0044	0.0024
rs4648450	−0.0012	−0.0154	7.88E-01	1.85E-10	0.0044	0.0024
rs4687770	0.0038	−0.0193	5.50E-01	4.50E-08	0.0063	0.0035
rs4718964	−0.0016	0.0146	7.23E-01	2.64E-09	0.0044	0.0024
rs4757144	−0.0059	0.0165	1.80E-01	1.42E-11	0.0044	0.0024
rs4776970	0.0076	−0.0255	8.85E-02	2.89E-24	0.0045	0.0025
rs4777541	0.0001	0.0197	9.84E-01	5.08E-12	0.0051	0.0028
rs4778918	0.0049	−0.0152	2.64E-01	4.11E-10	0.0043	0.0024
rs4799949	−0.0292	−0.0005	1.40E-10	8.52E-01	0.0046	0.0026
rs487662	−0.0092	0.0154	6.55E-02	3.14E-08	0.0050	0.0028
rs4911382	0.0061	0.0156	1.65E-01	1.90E-10	0.0044	0.0024
rs491711	0.0085	−0.0158	6.69E-02	1.28E-09	0.0047	0.0026
rs4921301	−0.0040	−0.0182	4.56E-01	1.02E-09	0.0053	0.0030
rs4929923	−0.0018	0.0174	6.95E-01	4.39E-12	0.0045	0.0025
rs4936275	0.0278	0.0006	3.35E-10	8.00E-01	0.0044	0.0025
rs508502	−0.0264	−0.0098	3.56E-08	2.23E-04	0.0048	0.0027
rs525101	−0.0128	0.0165	4.23E-03	3.50E-11	0.0045	0.0025
rs539515	−0.0013	0.0475	8.14E-01	6.64E-58	0.0053	0.0030
rs550974	0.0066	0.0159	1.34E-01	8.55E-11	0.0044	0.0024
rs55689274	−0.0046	−0.0148	3.30E-01	2.53E-08	0.0048	0.0027
rs55726687	0.0066	0.0239	2.10E-01	5.09E-16	0.0053	0.0029
rs55886426	−0.0045	−0.0316	6.61E-01	9.86E-09	0.0102	0.0055
rs55938344	0.0080	−0.0168	1.14E-01	2.39E-09	0.0051	0.0028
rs56067609	−0.0006	−0.0194	9.21E-01	3.21E-08	0.0063	0.0035
rs56161855	−0.0082	0.0230	1.95E-01	9.65E-11	0.0063	0.0035
rs56212061	−0.0048	−0.0211	4.25E-01	3.89E-10	0.0060	0.0034
rs56803094	0.0097	−0.0189	6.04E-02	5.04E-11	0.0051	0.0029
rs57636386	−0.0122	−0.0428	1.16E-01	8.92E-23	0.0077	0.0044
rs588660	−0.0034	0.0183	4.50E-01	6.52E-14	0.0045	0.0024
rs59082935	0.0363	0.0044	3.07E-08	2.21E-01	0.0066	0.0036
rs59104534	−0.0074	0.0150	1.18E-01	1.22E-08	0.0047	0.0026
rs5995843	−0.0136	−0.0174	2.49E-03	4.43E-12	0.0045	0.0025
rs6050446	−0.0025	0.0421	8.40E-01	4.83E-10	0.0123	0.0068
rs60654199	−0.0036	0.0313	6.84E-01	8.03E-11	0.0089	0.0048
rs60764613	0.0193	0.0236	1.58E-03	5.84E-12	0.0061	0.0034
rs61813324	−0.0076	0.0279	2.38E-01	4.69E-15	0.0065	0.0036
rs61826867	−0.0029	0.0251	6.75E-01	6.05E-11	0.0068	0.0038
rs61871615	0.0005	−0.0280	9.51E-01	1.47E-10	0.0082	0.0044
rs61903695	−0.0109	0.0164	2.78E-02	2.78E-09	0.0049	0.0028

(Cont'd...)

Table S9. ***(Continued)***

	Adjusted for body mass index					
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs61914045	0.0309	0.0013	7.96E-09	6.55E-01	0.0054	0.0030
rs61969510	−0.0078	0.0155	1.04E-01	8.25E-09	0.0048	0.0027
rs62106258	0.0010	−0.0907	9.20E-01	3.93E-59	0.0102	0.0056
rs62246314	−0.0299	0.0228	2.44E-05	1.02E-08	0.0071	0.0040
rs62407562	−0.0014	0.0171	7.74E-01	2.87E-10	0.0049	0.0027
rs62535714	0.0339	−0.0013	4.69E-09	6.84E-01	0.0058	0.0033
rs62543438	0.0058	−0.0148	2.28E-01	4.22E-08	0.0048	0.0027
rs6265	0.0173	−0.0402	1.59E-03	2.04E-39	0.0055	0.0031
rs6536575	−0.0088	0.0141	4.26E-02	4.97E-09	0.0043	0.0024
rs6575340	0.0133	0.0229	2.90E-03	6.48E-20	0.0045	0.0025
rs6601527	0.0074	−0.0217	9.06E-02	6.18E-19	0.0044	0.0024
rs66511648	−0.0297	0.0088	6.03E-10	9.49E-04	0.0048	0.0027
rs6656912	−0.0252	0.0025	6.50E-09	3.05E-01	0.0043	0.0024
rs66679256	−0.0096	0.0163	2.63E-02	1.70E-11	0.0043	0.0024
rs6687953	−0.0053	0.0159	2.29E-01	1.06E-10	0.0044	0.0025
rs66922415	0.0151	0.0521	2.84E-03	1.55E-75	0.0051	0.0028
rs6722241	0.0029	−0.0202	5.57E-01	1.06E-13	0.0049	0.0027
rs6739755	0.0019	−0.0210	6.73E-01	1.62E-17	0.0044	0.0025
rs67609008	−0.0071	0.0146	1.46E-01	4.78E-08	0.0049	0.0027
rs6780459	−0.0100	0.0164	4.42E-02	3.18E-09	0.0049	0.0028
rs67844506	0.0176	−0.0259	1.59E-03	7.65E-17	0.0056	0.0031
rs6789488	0.0010	0.0200	8.40E-01	5.85E-13	0.0050	0.0028
rs67981811	0.0620	0.0103	1.14E-18	6.01E-03	0.0070	0.0037
rs6809307	0.0048	0.0157	3.30E-01	1.27E-08	0.0049	0.0028
rs6831020	−0.0037	−0.0159	4.36E-01	1.39E-09	0.0048	0.0026
rs6861649	0.0005	0.0143	9.02E-01	6.23E-09	0.0044	0.0025
rs6950388	0.0034	0.0172	5.36E-01	7.10E-09	0.0054	0.0030
rs7006178	−0.0207	0.0155	1.26E-05	5.50E-09	0.0047	0.0027
rs7030732	−0.0070	−0.0152	1.15E-01	7.04E-10	0.0044	0.0025
rs704061	−0.0086	0.0159	4.57E-02	4.88E-11	0.0043	0.0024
rs7094644	−0.0067	0.0153	1.66E-01	4.81E-09	0.0048	0.0026
rs7116641	0.0048	0.0244	3.01E-01	3.67E-21	0.0046	0.0026
rs7124681	−0.0145	0.0267	8.78E-04	5.90E-28	0.0044	0.0024
rs7132908	0.0041	0.0285	3.52E-01	8.27E-31	0.0044	0.0025
rs7138383	0.0009	−0.0214	8.55E-01	1.05E-14	0.0049	0.0028
rs7141420	0.0018	0.0208	6.74E-01	7.74E-18	0.0043	0.0024
rs71495049	0.0067	0.0265	3.84E-01	8.69E-10	0.0077	0.0043
rs7152906	−0.0258	0.0052	1.87E-09	3.17E-02	0.0043	0.0024
rs7183417	0.0181	0.0149	3.24E-05	8.37E-10	0.0043	0.0024
rs7189149	0.0004	0.0213	9.47E-01	3.29E-09	0.0065	0.0036
rs7195386	0.0043	−0.0159	3.20E-01	4.21E-11	0.0043	0.0024

(Cont'd...)

Table S9. ***(Continued)***

	Adjusted for body mass index					
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs7201895	−0.0087	−0.0173	6.02E-02	6.54E-12	0.0046	0.0025
rs7218014	−0.0109	0.0207	4.21E-02	8.05E-12	0.0054	0.0030
rs7241572	0.0323	0.0078	2.43E-09	9.40E-03	0.0054	0.0030
rs72697614	0.0132	0.0150	5.07E-03	9.67E-09	0.0047	0.0026
rs72820274	0.0184	0.0160	2.39E-05	5.39E-11	0.0044	0.0024
rs72892910	0.0061	0.0402	2.86E-01	4.89E-36	0.0057	0.0032
rs72948506	0.0265	0.0048	1.72E-08	6.74E-02	0.0047	0.0026
rs72976986	−0.0064	−0.0240	2.59E-01	6.81E-15	0.0057	0.0031
rs73050254	0.0031	0.0193	6.16E-01	3.45E-08	0.0063	0.0035
rs73144053	0.0034	−0.0154	4.54E-01	2.01E-09	0.0046	0.0026
rs73169730	−0.0095	0.0195	4.67E-02	4.35E-13	0.0048	0.0027
rs7321331	−0.0131	0.0176	8.06E-03	1.87E-10	0.0050	0.0028
rs73213484	0.0111	−0.0212	7.08E-02	1.05E-09	0.0061	0.0035
rs7331420	−0.0105	−0.0147	2.69E-02	3.44E-08	0.0048	0.0027
rs7442885	−0.0122	−0.0254	1.94E-02	7.96E-18	0.0052	0.0030
rs7498044	−0.0088	−0.0176	9.38E-02	1.75E-09	0.0053	0.0029
rs750090	−0.0011	−0.0156	8.06E-01	6.93E-10	0.0045	0.0025
rs752179	0.0002	−0.0144	9.70E-01	4.17E-08	0.0047	0.0026
rs754287	−0.0289	0.0040	1.31E-10	1.09E-01	0.0045	0.0025
rs75499503	0.0059	−0.0198	2.64E-01	1.88E-11	0.0052	0.0029
rs7551758	−0.0283	−0.0055	5.11E-11	2.19E-02	0.0043	0.0024
rs7553158	−0.0085	−0.0174	4.98E-02	6.70E-13	0.0043	0.0024
rs75557510	0.0032	−0.0378	7.22E-01	1.33E-13	0.0091	0.0051
rs756717	0.0042	−0.0147	3.51E-01	3.38E-09	0.0045	0.0025
rs76040172	−0.0100	−0.0408	3.16E-01	1.62E-14	0.0100	0.0053
rs76954012	0.0412	0.0091	2.41E-08	2.59E-02	0.0074	0.0041
rs7701777	−0.0073	−0.0170	1.25E-01	1.74E-10	0.0048	0.0027
rs7719067	−0.0135	−0.0162	1.82E-03	2.41E-11	0.0043	0.0024
rs7723426	−0.0082	0.0147	7.47E-02	1.09E-08	0.0046	0.0026
rs7725715	0.0290	−0.0081	1.61E-11	8.13E-04	0.0043	0.0024
rs7755574	−0.0144	0.0155	2.56E-03	6.87E-09	0.0048	0.0027
rs7774	0.0010	0.0166	8.39E-01	2.01E-10	0.0047	0.0026
rs7852189	−0.0111	0.0166	1.55E-02	1.61E-10	0.0046	0.0026
rs78565420	−0.0034	0.0337	7.39E-01	6.24E-10	0.0103	0.0055
rs7933085	0.0076	0.0157	8.07E-02	7.21E-11	0.0043	0.0024
rs7941828	0.0035	−0.0156	4.32E-01	4.34E-10	0.0045	0.0025
rs7952102	−0.0004	−0.0152	9.31E-01	6.59E-10	0.0045	0.0025
rs7992832	−0.0042	−0.0176	3.88E-01	7.02E-11	0.0048	0.0027
rs799449	−0.0096	0.0199	2.75E-02	2.41E-16	0.0044	0.0024
rs8015400	0.0019	0.0211	6.84E-01	2.45E-16	0.0046	0.0026
rs80330591	0.0013	−0.0214	8.36E-01	3.08E-10	0.0061	0.0034

(Cont'd...)

Table S9. ***(Continued)***

Adjusted for body mass index						
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs8078135	−0.0012	−0.0195	7.83E-01	6.23E-16	0.0044	0.0024
rs8087074	−0.0052	0.0170	2.92E-01	6.02E-10	0.0050	0.0027
rs8134638	0.0024	0.0152	6.09E-01	9.68E-10	0.0046	0.0025
rs815163	0.0043	−0.0182	3.16E-01	4.69E-14	0.0043	0.0024
rs845084	0.0068	0.0203	1.70E-01	1.61E-13	0.0049	0.0028
rs862320	−0.0104	−0.0228	1.70E-02	1.10E-20	0.0044	0.0024
rs869400	−0.0103	0.0307	6.43E-02	4.70E-23	0.0055	0.0031
rs879620	−0.0102	0.0256	2.33E-02	4.93E-25	0.0045	0.0025
rs9320823	0.0067	0.0189	1.26E-01	1.30E-14	0.0044	0.0025
rs9342196	−0.0038	0.0167	4.97E-01	4.83E-08	0.0055	0.0031
rs935166		−0.0155	9.97E-01	1.13E-10	0.0043	0.0024
rs9364755	−0.0283	0.0010	3.49E-08	7.24E-01	0.0051	0.0029
rs9402104	0.0027	0.0139	5.46E-01	1.43E-08	0.0044	0.0025
rs946185	0.0028	−0.0147	5.31E-01	2.41E-09	0.0044	0.0025
rs9515455	0.0026	0.0180	5.57E-01	2.25E-13	0.0044	0.0024
rs9527906	0.0122	−0.0162	1.61E-02	1.13E-08	0.0051	0.0028
rs9529218	−0.0340	−0.0045	2.23E-10	1.32E-01	0.0054	0.0030
rs9536381	0.0255	0.0107	2.62E-08	2.69E-05	0.0046	0.0026
rs9641499	−0.0016	−0.0171	7.15E-01	1.68E-12	0.0043	0.0024
rs9688977	−0.0058	0.0240	3.44E-01	1.93E-12	0.0061	0.0034
rs9831249	−0.0247	−0.0152	1.41E-08	4.32E-10	0.0044	0.0024
rs9831648	−0.0292	−0.0133	1.59E-08	3.48E-06	0.0052	0.0029
rs9843653	−0.0131	0.0317	2.31E-03	9.35E-40	0.0043	0.0024
rs9847186	−0.0138	−0.0143	1.53E-03	4.36E-09	0.0044	0.0024
Adjusted for smoking initiation						
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs10001365	−0.0088	−0.0250	4.51E-02	6.65E-12	0.0044	0.0036
rs10159545	−0.0043	0.0263	3.45E-01	1.84E-12	0.0045	0.0037
rs1021363	0.0300	−0.0101	2.29E-11	6.95E-03	0.0045	0.0037
rs10233018	−0.0260	0.0271	1.44E-09	2.75E-14	0.0043	0.0036
rs10235664	0.0270	−0.0060	4.68E-08	1.43E-01	0.0049	0.0041
rs10260968	−0.0147	−0.0203	8.20E-04	1.75E-08	0.0044	0.0036
rs10279261	−0.0023	−0.0214	6.00E-01	5.00E-09	0.0044	0.0037
rs10498846	0.0035	0.0206	4.13E-01	6.62E-09	0.0043	0.0036
rs1050847	−0.0053	−0.0216	2.26E-01	1.67E-09	0.0044	0.0036
rs10905461	0.0139	−0.0240	4.91E-03	7.35E-09	0.0049	0.0041
rs10913112	−0.0262	−0.0005	4.53E-09	9.01E-01	0.0045	0.0037
rs11057005	0.0085	−0.0209	5.03E-02	4.85E-09	0.0044	0.0036
rs11078713	−0.0010	−0.0202	8.22E-01	2.23E-08	0.0044	0.0036
rs1154693	−0.0137	0.0326	2.34E-02	3.12E-11	0.0061	0.0049
rs11658881	−0.0027	0.0201	5.29E-01	2.43E-08	0.0044	0.0036

(Cont'd...)

Table S9. ***(Continued)***

	Adjusted for smoking initiation					
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs11712680	0.0157	−0.0270	4.33E-03	3.51E-09	0.0055	0.0046
rs117143374	−0.0057	0.0293	3.74E-01	2.76E-08	0.0064	0.0053
rs11872397	−0.0060	−0.0248	2.28E-01	1.43E-09	0.0050	0.0041
rs12025237	0.0117	−0.0330	7.32E-02	6.52E-10	0.0065	0.0053
rs12042107	0.0103	−0.0223	2.05E-02	4.22E-10	0.0045	0.0036
rs12112638	−0.0074	−0.0245	1.26E-01	1.34E-09	0.0049	0.0040
rs12186738	−0.0124	−0.0333	4.25E-02	3.42E-11	0.0061	0.0050
rs12333760	0.0087	−0.0290	1.34E-01	1.44E-09	0.0058	0.0048
rs12356821	−0.0045	0.0394	4.60E-01	6.27E-15	0.0061	0.0050
rs12441907	0.0089	−0.0292	1.01E-01	1.06E-10	0.0055	0.0045
rs12474587	−0.0061	0.0276	1.59E-01	1.25E-14	0.0043	0.0036
rs12545053	−0.0085	0.0203	5.21E-02	2.43E-08	0.0044	0.0036
rs12632110	0.0053	−0.0234	2.46E-01	4.78E-10	0.0046	0.0038
rs12919291	0.0327	0.0102	3.09E-09	2.53E-02	0.0055	0.0046
rs12967143	−0.0345	−0.0052	2.53E-13	1.88E-01	0.0047	0.0039
rs13030994	0.0058	0.0361	1.75E-01	3.56E-24	0.0043	0.0036
rs13037326	0.0310	0.0087	2.40E-10	3.32E-02	0.0049	0.0041
rs13145728	−0.0183	−0.0233	3.77E-05	2.14E-10	0.0044	0.0037
rs13261666	−0.0178	−0.0269	3.19E-05	3.90E-14	0.0043	0.0036
rs134529	−0.0109	−0.0200	1.38E-02	4.85E-08	0.0044	0.0037
rs1367635	−0.0253	0.0121	4.35E-09	7.15E-04	0.0043	0.0036
rs1385108	0.0072	0.0247	1.51E-01	3.00E-09	0.0050	0.0042
rs1435741	−0.0005	0.0294	9.01E-01	2.64E-16	0.0043	0.0036
rs1445649	−0.0082	0.0240	5.64E-02	1.68E-11	0.0043	0.0036
rs150186873	−0.0704	−0.0024	4.51E-09	8.06E-01	0.0120	0.0099
rs1555445	−0.0078	0.0226	9.38E-02	3.65E-09	0.0047	0.0038
rs1565735	−0.0019	−0.0376	7.26E-01	3.42E-17	0.0054	0.0045
rs17641524	−0.0300	−0.0030	1.50E-08	4.92E-01	0.0053	0.0043
rs1869243	−0.0047	0.0197	2.72E-01	2.97E-08	0.0043	0.0036
rs1899896	0.0081	0.0264	8.54E-02	1.04E-11	0.0047	0.0039
rs1931388	0.0295	−0.0138	1.68E-11	1.36E-04	0.0044	0.0036
rs1950829	0.0297	−0.0071	4.74E-12	4.76E-02	0.0043	0.0036
rs1971318	0.0061	0.0285	3.07E-01	7.06E-09	0.0059	0.0049
rs198457	−0.0315	0.0080	1.90E-08	8.47E-02	0.0056	0.0047
rs2046850	0.0016	−0.0248	7.68E-01	3.03E-08	0.0054	0.0045
rs2050586	−0.0081	−0.0205	7.08E-02	3.00E-08	0.0045	0.0037
rs2107300	0.0116	−0.0272	5.34E-02	3.27E-08	0.0060	0.0049
rs2111592	0.0263	0.0133	1.35E-08	5.42E-04	0.0046	0.0038
rs2140114	−0.0060	−0.0233	1.65E-01	4.70E-10	0.0043	0.0037
rs2214123	0.0261	−0.0097	8.56E-09	8.50E-03	0.0045	0.0037
rs2378662	0.0105	0.0209	1.55E-02	4.16E-09	0.0043	0.0036

(Cont'd...)

Table S9. ***(Continued)***

	Adjusted for smoking initiation					
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs240963	0.0185	−0.0410	1.63E-03	2.16E-17	0.0059	0.0048
rs2418449	0.0281	−0.0060	4.25E-09	1.31E-01	0.0048	0.0040
rs2568958	0.0382	0.0054	2.90E-18	1.37E-01	0.0044	0.0036
rs2631024	0.0110	−0.0230	2.44E-02	1.18E-08	0.0049	0.0040
rs266047	−0.0089	−0.0305	3.98E-02	3.36E-16	0.0043	0.0037
rs28541419	0.0292	0.0040	1.76E-08	3.42E-01	0.0052	0.0042
rs3001723	0.0069	0.0335	1.39E-01	8.12E-18	0.0047	0.0039
rs301805	0.0225	0.0215	2.36E-07	2.80E-09	0.0044	0.0036
rs30266	0.0366	0.0134	1.43E-15	4.46E-04	0.0046	0.0038
rs354155	−0.0449	−0.0053	1.75E-09	3.89E-01	0.0075	0.0061
rs35702515	0.0021	0.0252	6.91E-01	2.43E-09	0.0052	0.0042
rs3800227	−0.0071	0.0228	1.51E-01	1.93E-08	0.0049	0.0041
rs3801289	0.0023	−0.0221	6.09E-01	3.74E-09	0.0046	0.0037
rs3807865	0.0310	0.0122	1.09E-12	7.34E-04	0.0044	0.0036
rs3904512	−0.0061	−0.0212	1.62E-01	3.23E-09	0.0043	0.0036
rs4044321	0.0159	−0.0278	4.07E-04	6.08E-14	0.0045	0.0037
rs4141983	0.0264	−0.0055	9.69E-09	1.46E-01	0.0046	0.0038
rs4236259	−0.0031	−0.0248	4.76E-01	3.35E-12	0.0044	0.0036
rs4352629	0.0203	−0.0275	2.49E-06	1.22E-14	0.0043	0.0036
rs4523689	0.0025	−0.0206	5.73E-01	1.55E-08	0.0044	0.0036
rs4543592	−0.0095	0.0219	2.71E-02	7.46E-10	0.0043	0.0036
rs4674993	0.0239	−0.0252	1.00E-05	1.32E-08	0.0054	0.0044
rs4759228	−0.0010	−0.0217	8.38E-01	3.58E-08	0.0048	0.0039
rs4781977	−0.0041	−0.0239	4.38E-01	4.54E-08	0.0052	0.0044
rs4785836	0.0003	−0.0205	9.41E-01	2.26E-08	0.0044	0.0037
rs4799949	−0.0292	−0.0065	1.40E-10	8.36E-02	0.0046	0.0038
rs508502	−0.0264	−0.0118	3.56E-08	2.54E-03	0.0048	0.0039
rs578584	0.0116	0.0287	7.73E-03	1.50E-15	0.0043	0.0036
rs59082935	0.0363	0.0089	3.07E-08	1.08E-01	0.0066	0.0055
rs61914045	0.0309	0.0113	7.96E-09	1.02E-02	0.0054	0.0044
rs62535714	0.0339	−0.0065	4.69E-09	1.74E-01	0.0058	0.0048
rs6265	0.0173	−0.0318	1.59E-03	3.77E-12	0.0055	0.0046
rs6433897	−0.0008	0.0224	8.76E-01	3.16E-08	0.0049	0.0041
rs66511648	−0.0297	−0.0013	6.03E-10	7.36E-01	0.0048	0.0040
rs66680800	0.0105	−0.0203	1.69E-02	2.83E-08	0.0044	0.0037
rs6669839	0.0142	0.0260	7.53E-03	3.36E-09	0.0053	0.0044
rs6728726	−0.0053	0.0354	3.52E-01	6.73E-14	0.0057	0.0047
rs6788098	−0.0133	−0.0313	2.65E-03	1.91E-17	0.0044	0.0037
rs67981811	0.0620	−0.0273	1.14E-18	3.32E-06	0.0070	0.0059
rs6893752	0.0029	−0.0241	5.62E-01	3.25E-09	0.0049	0.0041
rs7152906	−0.0258	0.0033	1.87E-09	3.48E-01	0.0043	0.0036

(Cont'd...)

Table S9. ***(Continued)***

Adjusted for smoking initiation						
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs7197072	−0.0009	−0.0248	8.59E-01	2.77E-09	0.0053	0.0042
rs7224742	−0.0085	−0.0207	5.56E-02	1.43E-08	0.0044	0.0037
rs7241572	0.0323	0.0205	2.43E-09	3.02E-06	0.0054	0.0044
rs72789632	−0.0132	−0.0329	3.95E-02	5.02E-10	0.0064	0.0053
rs72896886	0.0089	−0.0269	1.25E-01	2.75E-08	0.0058	0.0048
rs72948506	0.0265	0.0072	1.72E-08	6.44E-02	0.0047	0.0039
rs7322872	−0.0040	−0.0256	4.53E-01	3.58E-09	0.0053	0.0043
rs754287	−0.0289	0.0040	1.31E-10	2.76E-01	0.0045	0.0037
rs7551758	−0.0283	0.0082	5.11E-11	2.14E-02	0.0043	0.0036
rs7555507	−0.0265	−0.0241	7.76E-10	1.14E-11	0.0043	0.0036
rs76214862	0.0106	−0.0250	5.41E-02	3.99E-08	0.0055	0.0045
rs76608582	−0.0157	−0.0496	1.50E-01	1.94E-09	0.0109	0.0083
rs76954012	0.0412	0.0151	2.41E-08	1.96E-02	0.0074	0.0065
rs7725715	0.0290	0.0069	1.61E-11	5.45E-02	0.0043	0.0036
rs7929518	−0.0049	0.0242	3.42E-01	1.56E-08	0.0052	0.0043
rs7938812	−0.0203	0.0438	3.96E-06	2.71E-33	0.0044	0.0036
rs7969559	0.0088	−0.0244	6.61E-02	7.31E-10	0.0048	0.0040
rs9364755	−0.0283	0.0175	3.49E-08	3.32E-05	0.0051	0.0042
rs9401770	−0.0038	0.0277	4.27E-01	3.47E-12	0.0048	0.0040
rs9423279	0.0187	−0.0205	6.84E-05	3.21E-08	0.0047	0.0037
rs9529218	−0.0340	−0.0070	2.23E-10	1.30E-01	0.0054	0.0046
rs9536381	0.0255	0.0083	2.62E-08	2.85E-02	0.0046	0.0038
rs962625	−0.0064	0.0237	1.89E-01	4.37E-09	0.0049	0.0040
rs9831249	−0.0247	−0.0059	1.41E-08	1.03E-01	0.0044	0.0036
rs9831648	−0.0292	−0.0195	1.59E-08	4.88E-06	0.0052	0.0043
rs993700	0.0051	−0.0259	3.20E-01	1.53E-09	0.0051	0.0043
Adjusted for type 2 diabetes						
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs10077431	−0.0487	−0.0210	4.75E-08	5.90E-05	0.0089	0.0052
rs10087241	−0.0475	−0.0049	2.80E-09	2.61E-01	0.0080	0.0044
rs10100265	−0.0491	−0.0069	6.29E-10	1.19E-01	0.0079	0.0044
rs10114341	−0.0409	0.0001	1.15E-08	9.84E-01	0.0072	0.0043
rs1021363	0.0015	0.0300	8.51E-01	2.29E-11	0.0082	0.0045
rs10235664	−0.0447	0.0270	9.51E-07	4.68E-08	0.0091	0.0049
rs10401969	0.0921	0.0177	4.13E-12	2.89E-02	0.0133	0.0081
rs10501696	0.0217	0.0295	6.41E-03	2.89E-11	0.0080	0.0044
rs1050226	−0.0491	0.0092	3.34E-11	3.60E-02	0.0074	0.0044
rs1061813	−0.0429	−0.0022	3.37E-09	6.15E-01	0.0073	0.0043
rs10740322	0.0477	0.0035	2.11E-08	4.52E-01	0.0085	0.0047
rs10811661	−0.1569	−0.0020	4.13E-58	7.22E-01	0.0098	0.0057
rs10830963	0.0909	−0.0095	5.85E-30	4.96E-02	0.0080	0.0048

(Cont'd...)

Table S9. ***(Continued)***

	Adjusted for type 2 diabetes					
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs10842994	−0.0755	−0.0087	1.02E-16	1.06E-01	0.0091	0.0054
rs10913112	0.0056	−0.0262	4.90E-01	4.53E-09	0.0081	0.0045
rs10974438	0.0591	0.0002	3.01E-15	9.68E-01	0.0075	0.0045
rs11098676	0.0540	0.0009	2.03E-08	8.68E-01	0.0096	0.0052
rs11107116	0.0467	0.0008	3.75E-08	8.77E-01	0.0085	0.0052
rs1111875	−0.0948	0.0038	3.61E-39	3.89E-01	0.0072	0.0044
rs11257655	0.0737	0.0022	1.97E-17	6.94E-01	0.0087	0.0055
rs1127655	−0.0438	−0.0049	2.47E-08	2.54E-01	0.0079	0.0043
rs11708067	−0.0965	−0.0020	5.93E-29	6.93E-01	0.0086	0.0050
rs11925227	−0.0534	0.0040	2.25E-08	4.77E-01	0.0095	0.0056
rs11926707	0.0463	−0.0002	1.69E-08	9.61E-01	0.0082	0.0045
rs12088739	−0.0884	0.0133	9.79E-12	7.54E-02	0.0130	0.0075
rs12299509	0.0467	−0.0019	2.09E-10	6.73E-01	0.0073	0.0044
rs12617659	−0.0685	0.0019	2.83E-11	7.51E-01	0.0103	0.0061
rs12631196	0.0037	0.0241	6.37E-01	3.28E-08	0.0079	0.0044
rs12910825	0.0517	−0.0080	2.16E-12	7.37E-02	0.0074	0.0045
rs12919291	0.0007	0.0327	9.47E-01	3.09E-09	0.0101	0.0055
rs12945601	−0.0480	−0.0076	1.72E-09	9.15E-02	0.0080	0.0045
rs12967143	0.0161	−0.0345	6.18E-02	2.53E-13	0.0086	0.0047
rs12970134	0.0555	−0.0109	5.31E-12	2.46E-02	0.0080	0.0048
rs13037326	0.0140	0.0310	1.15E-01	2.40E-10	0.0089	0.0049
rs13239186	0.0539	0.0227	2.70E-10	1.30E-06	0.0085	0.0047
rs13330951	−0.0456	0.0063	1.54E-08	1.41E-01	0.0081	0.0043
rs13389219	−0.0722	0.0050	2.11E-22	2.52E-01	0.0074	0.0044
rs1359790	−0.0796	−0.0005	2.80E-23	9.10E-01	0.0080	0.0048
rs1367635	0.0027	−0.0253	7.35E-01	4.35E-09	0.0079	0.0043
rs1496653	−0.0769	−0.0053	2.57E-18	3.22E-01	0.0088	0.0053
rs150346963	0.0231	0.0283	3.76E-03	1.16E-10	0.0080	0.0044
rs1552224	−0.1034	−0.0127	8.64E-25	3.13E-02	0.0101	0.0059
rs16988333	−0.0745	−0.0039	9.17E-09	6.00E-01	0.0130	0.0075
rs17086692	−0.0467		2.48E-08	1.00E+00	0.0084	0.0046
rs17168486	0.0742	0.0018	2.18E-15	7.51E-01	0.0094	0.0057
rs17405722	0.0870	−0.0020	2.28E-09	8.10E-01	0.0146	0.0081
rs17411031	−0.0450		3.04E-08	9.98E-01	0.0081	0.0049
rs17631783	−0.0487	0.0049	3.95E-08	3.24E-01	0.0089	0.0049
rs17641524	0.0160	−0.0300	9.44E-02	1.50E-08	0.0096	0.0053
rs17791513	−0.1027	0.0058	4.61E-12	5.19E-01	0.0148	0.0090
rs1801214	0.0903	0.0093	5.52E-34	4.20E-02	0.0074	0.0046
rs1899951	−0.1118	0.0062	1.64E-24	3.41E-01	0.0109	0.0065
rs1931388	−0.0078	0.0295	3.30E-01	1.68E-11	0.0080	0.0044
rs1950829	0.0004	0.0297	9.60E-01	4.74E-12	0.0078	0.0043

(Cont'd...)

Table S9. ***(Continued)***

	Adjusted for type 2 diabetes					
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs2111592	0.0100	0.0263	2.37E-01	1.35E-08	0.0085	0.0046
rs2214123	−0.0016	0.0261	8.42E-01	8.56E-09	0.0082	0.0045
rs2237892	−0.0960	0.0082	8.75E-10	3.61E-01	0.0157	0.0090
rs2246618	0.0513	−0.0175	1.20E-09	1.76E-04	0.0084	0.0047
rs2261181	0.0985	−0.0013	9.18E-17	8.59E-01	0.0118	0.0073
rs2294120	−0.0443	0.0065	1.62E-08	1.35E-01	0.0079	0.0043
rs2296173	0.0650	−0.0020	7.66E-14	6.97E-01	0.0087	0.0052
rs2299383	0.0412	0.0027	1.49E-08	5.32E-01	0.0073	0.0044
rs2418449	0.0045	0.0281	6.02E-01	4.25E-09	0.0087	0.0048
rs243019	0.0566	−0.0055	2.29E-15	2.05E-01	0.0071	0.0043
rs2493394	0.0730	−0.0061	1.15E-10	3.82E-01	0.0113	0.0069
rs2568958	0.0215	0.0382	3.56E-03	2.90E-18	0.0074	0.0044
rs2796441	−0.0715	−0.0017	1.96E-22	6.96E-01	0.0073	0.0044
rs2820426	0.0521	−0.0005	1.30E-12	9.09E-01	0.0073	0.0044
rs2867125	0.0601	−0.0050	4.33E-10	3.88E-01	0.0096	0.0057
rs2908282	0.0552	0.0042	4.25E-09	4.57E-01	0.0094	0.0057
rs2925979	−0.0534	−0.0003	9.06E-12	9.47E-01	0.0078	0.0047
rs2943656	0.0902	−0.0006	6.70E-34	8.92E-01	0.0074	0.0045
rs30266	0.0230	0.0366	6.10E-03	1.43E-15	0.0084	0.0046
rs3099439	0.0166	−0.0241	3.60E-02	2.78E-08	0.0079	0.0043
rs3217992	0.0527	0.0069	7.23E-13	1.20E-01	0.0073	0.0045
rs340874	0.0626	0.0138	8.41E-18	1.43E-03	0.0073	0.0043
rs348330	−0.0487	−0.0083	1.86E-09	6.65E-02	0.0081	0.0045
rs354155	−0.0146	−0.0449	2.81E-01	1.75E-09	0.0135	0.0075
rs3756784	0.0505	0.0064	2.59E-08	2.44E-01	0.0091	0.0055
rs3802177	−0.1217	−0.0021	2.32E-52	6.49E-01	0.0080	0.0046
rs3807865	0.0157	0.0310	4.85E-02	1.09E-12	0.0080	0.0044
rs4141983	0.0028	0.0264	7.37E-01	9.69E-09	0.0084	0.0046
rs459193	0.0711	0.0027	8.81E-18	5.90E-01	0.0083	0.0049
rs4622883	−0.0435	0.0007	3.02E-08	8.67E-01	0.0078	0.0043
rs4686471	0.0534	0.0002	4.28E-11	9.60E-01	0.0081	0.0044
rs4799949	−0.0139	−0.0292	9.46E-02	1.40E-10	0.0083	0.0046
rs4812829	0.0532	−0.0059	2.44E-08	3.16E-01	0.0095	0.0058
rs4823182	0.0482	−0.0039	3.36E-10	3.91E-01	0.0077	0.0045
rs4865796	0.0530	−0.0043	1.33E-11	3.52E-01	0.0078	0.0047
rs4936275	0.0045	0.0278	5.78E-01	3.35E-10	0.0080	0.0044
rs508502	−0.0012	−0.0264	8.91E-01	3.56E-08	0.0090	0.0048
rs516946	0.0824	−0.0017	3.16E-22	7.40E-01	0.0085	0.0051
rs5215	−0.0678	0.0039	2.09E-20	3.83E-01	0.0073	0.0045
rs55966194	−0.0526	0.0021	2.25E-09	6.67E-01	0.0088	0.0048
rs576674	−0.0654	−0.0026	1.79E-11	6.57E-01	0.0097	0.0058

(Cont'd...)

Table S9. ***(Continued)***

	Adjusted for type 2 diabetes					
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs6059662	0.0446	−0.0008	1.51E-08	8.67E-01	0.0079	0.0046
rs61914045	−0.0059	0.0309	5.46E-01	7.96E-09	0.0098	0.0054
rs61953351	−0.0700	−0.0104	1.98E-14	3.47E-02	0.0091	0.0049
rs622217	−0.0485	−0.0038	3.13E-10	3.80E-01	0.0077	0.0043
rs62535714	0.0100	0.0339	3.44E-01	4.69E-09	0.0106	0.0058
rs6515236	−0.0504	−0.0056	3.34E-08	2.55E-01	0.0091	0.0050
rs66511648	0.0014	−0.0297	8.75E-01	6.03E-10	0.0087	0.0048
rs6656912	0.0101	−0.0252	2.02E-01	6.50E-09	0.0079	0.0043
rs67232546	0.0596	0.0043	4.66E-10	4.14E-01	0.0096	0.0053
rs6767484	0.1209	−0.0022	2.70E-56	6.29E-01	0.0076	0.0046
rs6785040	−0.0633	0.0097	1.26E-08	1.06E-01	0.0111	0.0060
rs6795735	−0.0558	−0.0067	1.63E-14	1.23E-01	0.0073	0.0044
rs67981811	0.0132	0.0620	3.10E-01	1.14E-18	0.0130	0.0070
rs6878122	−0.0564	−0.0017	1.19E-12	7.18E-01	0.0079	0.0046
rs6960043	0.0640	0.0019	3.61E-19	6.53E-01	0.0071	0.0043
rs7144011	0.0482	0.0047	1.64E-08	3.61E-01	0.0085	0.0052
rs7152906	0.0069	−0.0258	3.79E-01	1.87E-09	0.0078	0.0043
rs7177055	0.0647	−0.0020	2.75E-16	6.75E-01	0.0079	0.0048
rs7240767	0.0451	0.0075	2.16E-08	8.92E-02	0.0081	0.0044
rs7241572	0.0197	0.0323	4.60E-02	2.43E-09	0.0099	0.0054
rs72802358	−0.1168	−0.0097	1.97E-18	1.75E-01	0.0133	0.0071
rs72892910	0.0648	0.0061	6.43E-11	2.86E-01	0.0099	0.0057
rs72948506	0.0239	0.0265	5.33E-03	1.72E-08	0.0086	0.0047
rs735949	−0.0711	0.0071	1.95E-11	2.50E-01	0.0106	0.0062
rs753270	0.0528	0.0066	2.70E-11	1.29E-01	0.0079	0.0044
rs754287	0.0121	−0.0289	1.35E-01	1.31E-10	0.0081	0.0045
rs7551758	0.0064	−0.0283	4.17E-01	5.11E-11	0.0079	0.0043
rs7561798	0.0400	−0.0087	2.79E-08	4.25E-02	0.0072	0.0043
rs7572970	0.0590	−0.0115	1.39E-11	1.70E-02	0.0087	0.0048
rs7607777	−0.1370	0.0171	9.40E-28	1.46E-02	0.0125	0.0070
rs7674212	−0.0465	−0.0036	6.18E-10	4.06E-01	0.0075	0.0044
rs7685296	−0.0511	−0.0013	2.32E-10	7.81E-01	0.0081	0.0048
rs76954012	0.0075	0.0412	5.76E-01	2.41E-08	0.0135	0.0074
rs7725715	−0.0080	0.0290	3.11E-01	1.61E-11	0.0079	0.0043
rs7729395	0.1373	−0.0159	1.10E-17	1.06E-01	0.0160	0.0099
rs7756992	0.1297	0.0003	6.00E-62	9.51E-01	0.0078	0.0048
rs7786095	−0.0743	−0.0008	9.64E-09	9.15E-01	0.0129	0.0071
rs780094	0.0692	0.0037	5.16E-21	3.99E-01	0.0074	0.0044
rs7845219	−0.0422	−0.0027	4.54E-09	5.24E-01	0.0072	0.0043
rs7903146	0.3059	−0.0120	1.00E-200	1.17E-02	0.0077	0.0047
rs7929543	0.0828	−0.0315	2.20E-09	4.41E-05	0.0138	0.0077

(Cont'd...)

Table S9. ***(Continued)***

Adjusted for type 2 diabetes						
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs7955901	−0.0444	0.0095	7.16E-10	2.85E-02	0.0072	0.0043
rs8068804	0.0587	−0.0095	4.41E-14	3.79E-02	0.0078	0.0046
rs8108269	0.0644	−0.0037	3.11E-16	4.40E-01	0.0079	0.0048
rs825476	0.0524	0.0044	6.80E-13	3.08E-01	0.0073	0.0044
rs840967	−0.0497	−0.0085	5.44E-10	5.37E-02	0.0080	0.0044
rs849135	−0.0999	−0.0027	1.04E-43	5.30E-01	0.0072	0.0043
rs853974	−0.0601	−0.0046	7.86E-12	3.44E-01	0.0088	0.0049
rs9364755	0.0122	−0.0283	1.83E-01	3.49E-08	0.0092	0.0051
rs9369425	−0.0546	−0.0016	1.13E-10	7.43E-01	0.0085	0.0047
rs9529218	−0.0356	−0.0340	3.03E-04	2.23E-10	0.0098	0.0054
rs9536381	0.0189	0.0255	2.45E-02	2.62E-08	0.0084	0.0046
rs963740	−0.0479	−0.0064	2.23E-08	1.73E-01	0.0086	0.0047
rs9831249	−0.0100	−0.0247	2.08E-01	1.41E-08	0.0080	0.0044
rs9831648	−0.0110	−0.0292	2.41E-01	1.59E-08	0.0094	0.0052
rs9844972	0.0956	0.0218	1.03E-10	1.07E-02	0.0148	0.0085
rs9894220	−0.0585	0.0079	1.52E-13	6.93E-02	0.0079	0.0043
rs9928094	0.1045	−0.0089	3.59E-47	4.04E-02	0.0072	0.0043
rs993380	−0.0507	−0.0028	4.59E-10	5.41E-01	0.0081	0.0046
rs9940149	−0.0580	−0.0055	9.29E-10	3.28E-01	0.0095	0.0056
Adjusted for triglycerides						
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs1009360	0.0069	−0.0185	1.12E-01	3.40E-20	0.0044	0.0020
rs1009590	0.0047	0.0208	5.44E-01	5.70E-09	0.0078	0.0036
rs10152471	0.0035	−0.0135	4.26E-01	4.00E-11	0.0044	0.0020
rs10210970	0.0109	0.0233	8.92E-02	2.00E-15	0.0064	0.0029
rs1021363	0.0300	−0.0069	2.29E-11	9.50E-04	0.0045	0.0021
rs10235664	0.0270	−0.0001	4.68E-08	9.50E-01	0.0049	0.0023
rs10242866	−0.0009	0.0158	8.36E-01	7.00E-15	0.0044	0.0020
rs10277582	0.0048	−0.0174	4.75E-01	1.70E-08	0.0067	0.0031
rs1037117	−0.0040	0.0172	4.26E-01	5.70E-14	0.0050	0.0023
rs10405944	−0.0081	−0.0132	6.77E-02	6.20E-11	0.0044	0.0020
rs1043897	−0.0070	−0.0147	1.12E-01	3.40E-13	0.0044	0.0020
rs1044808	0.0019	−0.0247	8.11E-01	8.30E-12	0.0079	0.0036
rs1045241	0.0013	−0.0207	7.84E-01	3.20E-20	0.0048	0.0022
rs10513688	0.0071	0.0248	3.22E-01	1.40E-13	0.0072	0.0033
rs10750766	0.0034	0.0194	4.70E-01	7.80E-19	0.0047	0.0022
rs10773000	−0.0108	−0.0149	1.88E-02	1.70E-12	0.0046	0.0021
rs10773049	−0.0025	−0.0290	5.69E-01	4.10E-46	0.0044	0.0020
rs10775406	−0.0012	0.0207	8.08E-01	6.60E-19	0.0050	0.0023
rs1077835	0.0043	0.0474	4.10E-01	2.20E-86	0.0052	0.0024
rs10797119	0.0048	0.0157	2.71E-01	4.60E-15	0.0044	0.0020

(Cont'd...)

Table S9. ***(Continued)***

	Adjusted for triglycerides					
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs10811662	0.0018	−0.0154	7.54E-01	4.60E-09	0.0057	0.0026
rs10883026	0.0008	−0.0145	8.61E-01	5.50E-13	0.0043	0.0020
rs10899490	−0.0019	−0.0170	7.50E-01	2.70E-10	0.0058	0.0027
rs10913112	−0.0262	−0.0057	4.53E-09	5.10E-03	0.0045	0.0020
rs11000468	−0.0008	−0.0149	8.76E-01	1.50E-10	0.0051	0.0023
rs11030107	0.0142	0.0160	3.66E-03	1.20E-12	0.0049	0.0023
rs11078597	0.0011	0.0192	8.52E-01	5.70E-14	0.0056	0.0026
rs11100083	−0.0027	−0.0160	5.94E-01	1.50E-11	0.0051	0.0024
rs11118310		0.0193	9.91E-01	1.10E-21	0.0044	0.0020
rs11122450		−0.0482	9.94E-01	1.30E-123	0.0044	0.0020
rs11185542	−0.0039	−0.0126	4.18E-01	1.60E-08	0.0048	0.0022
rs11187019	0.0015	−0.0116	7.37E-01	6.40E-09	0.0043	0.0020
rs11206374	0.0100	0.0250	5.08E-02	6.10E-26	0.0051	0.0024
rs112381903	0.0062	0.0232	4.79E-01	7.50E-09	0.0088	0.0040
rs11240358	0.0009	0.0136	8.31E-01	2.30E-11	0.0044	0.0020
rs1133400	−0.0037	0.0137	4.75E-01	9.80E-09	0.0052	0.0024
rs114165349	−0.0025	0.0818	8.56E-01	6.30E-35	0.0139	0.0066
rs11600815	−0.0149	−0.0322	1.36E-01	2.10E-12	0.0100	0.0046
rs11637681	−0.0094	0.0126	5.34E-02	2.00E-08	0.0049	0.0022
rs11664106	−0.0106	−0.0126	2.41E-02	2.40E-09	0.0047	0.0021
rs116843064	−0.0167	−0.2265	2.75E-01	1.00E-200	0.0153	0.0072
rs117233107	−0.0200	−0.0732	2.84E-01	1.80E-17	0.0187	0.0086
rs117287238	0.0319	−0.0394	1.87E-02	1.40E-10	0.0136	0.0061
rs117316645	0.0002	0.0278	9.85E-01	2.10E-08	0.0109	0.0050
rs117431393	−0.0071	0.0312	5.52E-01	6.50E-09	0.0119	0.0054
rs11746801	0.0007	−0.0124	8.83E-01	2.70E-09	0.0045	0.0021
rs11904650	−0.0058	0.0411	6.93E-01	3.00E-09	0.0148	0.0069
rs12185242	−0.0101	0.0175	1.97E-02	1.80E-18	0.0043	0.0020
rs12424054	−0.0061	0.0191	2.30E-01	4.50E-16	0.0051	0.0024
rs12440800	0.0011	0.0161	8.25E-01	2.20E-12	0.0049	0.0023
rs12446515	0.0026	−0.0334	5.78E-01	3.50E-55	0.0046	0.0021
rs12475332	−0.0033	−0.0140	5.02E-01	5.20E-10	0.0049	0.0023
rs12504746	0.0062	−0.0153	2.59E-01	1.40E-09	0.0055	0.0025
rs12530679	−0.0019	−0.0121	6.56E-01	1.80E-09	0.0044	0.0020
rs12669911	0.0099	−0.0119	2.62E-02	7.90E-09	0.0044	0.0021
rs12880341	0.0084	0.0210	1.58E-01	1.80E-14	0.0060	0.0027
rs12902047	0.0017	−0.0129	7.06E-01	1.70E-09	0.0046	0.0021
rs12919291	0.0327	−0.0002	3.09E-09	9.30E-01	0.0055	0.0025
rs1292065	0.0050	−0.0139	2.90E-01	1.90E-10	0.0047	0.0022
rs12926107	0.0016	0.0126	7.15E-01	2.70E-10	0.0043	0.0020
rs12928099	−0.0121	−0.0282	1.00E-02	2.90E-38	0.0047	0.0022

(Cont'd...)

Table S9. ***(Continued)***

	Adjusted for triglycerides					
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs12948505	−0.0107	0.0139	4.89E-02	3.20E-08	0.0054	0.0025
rs12967143	−0.0345	0.0022	2.53E-13	3.10E-01	0.0047	0.0022
rs13037326	0.0310	−0.0029	2.40E-10	2.00E-01	0.0049	0.0023
rs13066793	0.0055	−0.0225	4.72E-01	1.00E-10	0.0077	0.0035
rs13107325	0.0242	0.0301	3.88E-03	1.70E-15	0.0084	0.0038
rs13108218	−0.0003	−0.0305	9.41E-01	9.70E-50	0.0047	0.0021
rs13118477	0.0024	0.0150	5.85E-01	1.90E-13	0.0044	0.0020
rs13264304	0.0043	0.0189	4.71E-01	8.00E-12	0.0060	0.0028
rs13269725	0.0036	0.0350	6.51E-01	2.00E-21	0.0080	0.0037
rs13354321	−0.0071	−0.0154	1.05E-01	1.90E-14	0.0044	0.0020
rs13389219	0.0050	−0.0376	2.52E-01	6.60E-77	0.0044	0.0020
rs1340819		−0.0122	9.98E-01	6.30E-09	0.0045	0.0021
rs134551	0.0143	−0.0117	1.81E-03	3.40E-08	0.0046	0.0021
rs1347188	−0.0042	0.0139	4.03E-01	1.90E-09	0.0050	0.0023
rs1367635	−0.0253	0.0027	4.35E-09	1.80E-01	0.0043	0.0020
rs138191773	−0.0414	−0.0472	2.07E-02	2.60E-09	0.0179	0.0079
rs139386986	−0.0055	−0.0217	5.00E-01	1.10E-09	0.0082	0.0036
rs139974673	0.0035	0.1431	7.92E-01	2.20E-116	0.0134	0.0062
rs140107293	−0.0012	−0.0227	8.37E-01	1.60E-16	0.0059	0.0028
rs1420384	−0.0015	−0.0128	7.41E-01	1.20E-09	0.0046	0.0021
rs145947882	−0.0078	0.1373	5.84E-01	3.40E-103	0.0143	0.0064
rs1473886	−0.0058	−0.0181	1.79E-01	6.90E-20	0.0043	0.0020
rs148827772	0.0023	0.0466	8.83E-01	5.70E-11	0.0153	0.0071
rs149142833	−0.0087	0.0169	1.50E-01	9.10E-10	0.0060	0.0028
rs150186873	−0.0704	0.0044	4.51E-09	4.20E-01	0.0120	0.0055
rs150346963	0.0283	−0.0003	1.16E-10	8.70E-01	0.0044	0.0020
rs150419156	0.0258	−0.0505	1.58E-01	2.40E-09	0.0183	0.0085
rs150423652	−0.0635	0.2858	2.37E-02	1.40E-119	0.0281	0.0123
rs150460588	0.0012	0.0327	9.13E-01	1.60E-11	0.0106	0.0048
rs150555490	0.0189	−0.0384	4.65E-02	2.50E-19	0.0095	0.0043
rs150564454	0.0055	−0.1018	7.97E-01	4.40E-26	0.0213	0.0096
rs151235402	−0.0111	0.0522	5.32E-01	1.50E-10	0.0177	0.0082
rs1544980	0.0021	0.0239	6.93E-01	7.60E-22	0.0054	0.0025
rs1567353	0.0041	0.0148	3.85E-01	7.40E-12	0.0047	0.0022
rs17184382	0.0119	−0.0219	6.04E-03	1.10E-27	0.0043	0.0020
rs17326656	−0.0162	0.0174	1.36E-03	7.80E-14	0.0051	0.0023
rs174566	−0.0155	0.0485	6.09E-04	2.80E-120	0.0045	0.0021
rs17585887	−0.0032	−0.0286	4.63E-01	1.30E-45	0.0044	0.0020
rs1760801	−0.0057	−0.0203	2.34E-01	1.50E-20	0.0048	0.0022
rs17641524	−0.0300	0.0038	1.50E-08	1.20E-01	0.0053	0.0024
rs1799831	0.0026	0.0245	6.68E-01	3.70E-19	0.0060	0.0027

(Cont'd...)

Table S9. ***(Continued)***

	Adjusted for triglycerides					
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs1801689	−0.0130	−0.0661	3.14E-01	2.40E-30	0.0129	0.0058
rs1835346	0.0063	−0.0392	6.62E-01	2.20E-09	0.0143	0.0065
rs186696265	0.0006	−0.1043	9.75E-01	2.40E-36	0.0187	0.0083
rs1931388	0.0295	−0.0079	1.68E-11	1.10E-04	0.0044	0.0020
rs193735	−0.0074	0.0330	5.10E-01	4.90E-10	0.0113	0.0053
rs1938566	−0.0148	−0.0212	1.28E-02	2.00E-15	0.0060	0.0027
rs1950829	0.0297	−0.0031	4.74E-12	1.20E-01	0.0043	0.0020
rs198457	−0.0315	−0.0127	1.90E-08	7.00E-07	0.0056	0.0026
rs2043085	−0.0030	−0.0308	4.91E-01	1.90E-51	0.0044	0.0020
rs2068888	0.0048	−0.0318	2.70E-01	3.20E-57	0.0043	0.0020
rs2070341	−0.0027	0.0113	5.50E-01	2.80E-08	0.0045	0.0020
rs2071887	0.0135	0.0163	2.87E-03	7.30E-15	0.0045	0.0021
rs2081194	0.0078	−0.0214	8.74E-02	6.30E-25	0.0046	0.0021
rs2081687	0.0006	−0.0261	8.95E-01	7.60E-36	0.0045	0.0021
rs2092203	0.0140	0.0137	1.12E-03	6.80E-12	0.0043	0.0020
rs2111592	0.0263	−0.0031	1.35E-08	1.40E-01	0.0046	0.0021
rs2131311	0.0029	−0.0124	5.56E-01	2.50E-08	0.0049	0.0022
rs2131919	0.0001	0.0174	9.83E-01	1.00E-10	0.0058	0.0027
rs213494	−0.0149	0.0156	1.08E-03	5.50E-14	0.0046	0.0021
rs2137557		0.0118	9.92E-01	1.60E-08	0.0045	0.0021
rs2187114	−0.0051	−0.0185	4.83E-01	2.10E-08	0.0072	0.0033
rs2214123	0.0261	−0.0001	8.56E-09	9.70E-01	0.0045	0.0021
rs2237029	0.0026	−0.0139	5.51E-01	8.30E-12	0.0044	0.0020
rs2240466	−0.0043	−0.1228	5.09E-01	1.00E-200	0.0066	0.0030
rs2240533	−0.0005	−0.0130	9.21E-01	1.60E-09	0.0046	0.0022
rs2244278	−0.0011	−0.0270	8.71E-01	1.20E-18	0.0066	0.0031
rs2267373	0.0005	0.0216	9.18E-01	1.40E-26	0.0044	0.0020
rs2302263	−0.0087	0.0436	2.50E-01	8.00E-36	0.0076	0.0035
rs2304969	0.0010	−0.0161	8.71E-01	1.50E-08	0.0062	0.0029
rs2305746	−0.0064	0.0283	4.59E-01	1.20E-12	0.0087	0.0040
rs2382825	0.0003	−0.0135	9.55E-01	4.80E-11	0.0045	0.0020
rs2407278	−0.0004	−0.0339	9.72E-01	5.40E-09	0.0127	0.0058
rs2418449	0.0281	−0.0089	4.25E-09	5.90E-05	0.0048	0.0022
rs2487294	−0.0001	0.0183	9.88E-01	1.60E-16	0.0048	0.0022
rs2568958	0.0382	0.0074	2.90E-18	2.70E-04	0.0044	0.0020
rs2604568	−0.0065	0.0117	1.49E-01	2.80E-08	0.0045	0.0021
rs2699805	−0.0077	−0.0201	8.23E-02	5.10E-23	0.0044	0.0020
rs275184	−0.0064	−0.0173	2.80E-01	2.90E-10	0.0059	0.0028
rs2773469	0.0067	−0.0189	1.67E-01	5.70E-17	0.0049	0.0023
rs2812208	0.0098	−0.0484	5.06E-01	3.50E-12	0.0147	0.0070
rs28383314	−0.0144	0.0379	1.26E-03	1.50E-76	0.0045	0.0020

(Cont'd...)

Table S9. ***(Continued)***

	Adjusted for triglycerides					
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs28439112	−0.0179	0.0126	2.85E-04	2.70E-08	0.0049	0.0023
rs28541419	0.0292	0.0018	1.76E-08	4.60E-01	0.0052	0.0024
rs28577186	0.0031	−0.0163	5.03E-01	1.20E-14	0.0046	0.0021
rs2925979	−0.0003	−0.0322	9.47E-01	8.50E-50	0.0047	0.0022
rs2937124	−0.0093	−0.0183	4.14E-02	8.10E-18	0.0046	0.0021
rs2943645	−0.0003	0.0403	9.49E-01	2.90E-84	0.0045	0.0021
rs2983896	0.0033	0.0138	5.21E-01	1.20E-08	0.0052	0.0024
rs30266	0.0366	0.0110	1.43E-15	2.30E-07	0.0046	0.0021
rs308	0.0099	−0.1594	5.13E-01	2.60E-115	0.0151	0.0070
rs3099439	−0.0241	−0.0066	2.78E-08	1.10E-03	0.0043	0.0020
rs3103310	0.0070	0.0203	1.78E-01	1.10E-17	0.0052	0.0024
rs320369	−0.0072	−0.0125	1.23E-01	5.20E-09	0.0047	0.0021
rs325485	0.0317	−0.0117	7.14E-13	8.60E-09	0.0044	0.0020
rs326222	0.0035	0.0252	4.57E-01	1.40E-31	0.0047	0.0022
rs343	−0.0100	−0.1415	2.05E-01	1.00E-200	0.0079	0.0036
rs34682685	−0.0018	0.0337	7.94E-01	5.80E-25	0.0071	0.0033
rs354155	−0.0449	−0.0002	1.75E-09	9.50E-01	0.0075	0.0035
rs35763453	0.0109	0.0285	2.51E-01	6.20E-11	0.0095	0.0044
rs36043408	0.0009	−0.0128	8.35E-01	1.10E-10	0.0044	0.0020
rs3731696	−0.0113	0.0219	8.87E-02	5.10E-13	0.0066	0.0030
rs3758413	0.0020	0.0111	6.51E-01	3.50E-08	0.0045	0.0020
rs3775228	−0.0081	0.0338	6.72E-02	5.80E-62	0.0044	0.0020
rs3807865	0.0310	0.0084	1.09E-12	3.00E-05	0.0044	0.0020
rs3808477	−0.0022	−0.0134	6.49E-01	1.20E-09	0.0048	0.0022
rs3814883	−0.0145	0.0149	8.45E-04	8.70E-14	0.0043	0.0020
rs3820897	0.0037	0.0197	5.09E-01	3.50E-14	0.0057	0.0026
rs394872	0.0193	0.0112	1.55E-05	2.40E-08	0.0045	0.0020
rs3974807	0.0193	0.0160	4.51E-04	2.80E-10	0.0055	0.0025
rs4128205	−0.0010	0.0115	8.19E-01	8.10E-09	0.0043	0.0020
rs4134963	−0.0061	−0.0190	2.67E-01	9.00E-14	0.0055	0.0025
rs4141983	0.0264	−0.0006	9.69E-09	7.90E-01	0.0046	0.0021
rs41785	0.0004	−0.0150	9.30E-01	8.20E-14	0.0044	0.0020
rs4471666	−0.0011	−0.0225	9.02E-01	1.50E-08	0.0087	0.0040
rs4665972	0.0029	−0.1003	5.12E-01	1.00E-200	0.0044	0.0020
rs4675812	0.0018	−0.0142	6.72E-01	1.50E-12	0.0044	0.0020
rs4731701	0.0038	−0.0326	3.72E-01	2.70E-60	0.0043	0.0020
rs4760254	−0.0024	−0.0281	6.32E-01	1.00E-33	0.0050	0.0023
rs4761234	0.0066	−0.0140	1.23E-01	2.00E-12	0.0043	0.0020
rs4765148	0.0133	−0.0252	3.96E-03	9.70E-32	0.0046	0.0021
rs4799949	−0.0292	−0.0018	1.40E-10	3.90E-01	0.0046	0.0021
rs480823	0.0089	0.1557	2.66E-01	1.00E-200	0.0080	0.0037

(Cont'd...)

Table S9. ***(Continued)***

	Adjusted for triglycerides					
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs483082	0.0026	0.0862	6.19E-01	1.00E-200	0.0052	0.0023
rs483808	−0.0075	−0.0137	1.18E-01	4.00E-10	0.0048	0.0022
rs4841580	0.0025	−0.0245	5.67E-01	1.40E-34	0.0044	0.0020
rs4936275	0.0278	0.0071	3.35E-10	5.50E-04	0.0044	0.0021
rs4969179	0.0046	−0.0178	2.98E-01	2.80E-18	0.0044	0.0020
rs4976033	−0.0112	0.0178	1.12E-02	4.30E-18	0.0044	0.0021
rs499293	−0.0154	−0.0118	6.53E-04	1.70E-08	0.0045	0.0021
rs508502	−0.0264	0.0020	3.56E-08	3.60E-01	0.0048	0.0022
rs55646464	0.0047	0.0122	3.17E-01	1.90E-08	0.0047	0.0022
rs55966194	0.0021	−0.0179	6.67E-01	7.10E-16	0.0048	0.0022
rs56397607	−0.0005	0.0175	9.30E-01	1.10E-11	0.0056	0.0026
rs56902258	−0.0145	−0.0151	8.02E-03	1.70E-09	0.0055	0.0025
rs581080	−0.0015	0.0175	7.91E-01	1.10E-11	0.0056	0.0026
rs58542926	−0.0174	−0.1032	3.24E-02	5.30E-164	0.0081	0.0038
rs59082935	0.0363	0.0027	3.07E-08	3.70E-01	0.0066	0.0030
rs6028716	−0.0062	−0.0128	2.07E-01	2.00E-08	0.0049	0.0023
rs6073958	−0.0057	0.0557	2.88E-01	1.60E-110	0.0054	0.0025
rs60856912	0.0137	0.0248	1.85E-02	4.80E-20	0.0058	0.0027
rs61729990	0.0037	−0.0558	8.31E-01	1.10E-13	0.0172	0.0075
rs61830291	0.0022	0.0287	7.62E-01	1.80E-17	0.0074	0.0034
rs61905078	−0.0147	0.1999	7.25E-02	1.00E-200	0.0082	0.0038
rs61914045	0.0309	−0.0095	7.96E-09	1.30E-04	0.0054	0.0025
rs61993685	0.0128	−0.0234	1.26E-01	3.90E-10	0.0084	0.0037
rs62102718	0.0052	0.0202	2.83E-01	3.90E-20	0.0048	0.0022
rs62117489	0.0226	−0.0428	1.77E-02	3.60E-23	0.0095	0.0043
rs62128802	0.0049	−0.0159	3.77E-01	7.40E-10	0.0056	0.0026
rs62135012	−0.0034	−0.0117	4.52E-01	1.50E-08	0.0045	0.0021
rs62271373	0.0142	0.0420	1.29E-01	7.80E-23	0.0094	0.0043
rs62274099	−0.0005	0.0121	9.16E-01	2.30E-09	0.0044	0.0020
rs62397245	−0.0012	0.0150	8.14E-01	3.90E-10	0.0052	0.0024
rs62427982	−0.0110	−0.0133	1.77E-02	4.20E-10	0.0046	0.0021
rs62473520	0.0074	−0.0211	3.70E-01	2.80E-08	0.0083	0.0038
rs62535714	0.0339	0.0062	4.69E-09	2.10E-02	0.0058	0.0027
rs6432622	0.0188	−0.0109	1.27E-05	3.80E-08	0.0043	0.0020
rs6506033	0.0013	−0.0229	8.81E-01	2.50E-09	0.0084	0.0038
rs6517522	−0.0061	−0.0129	1.71E-01	9.40E-11	0.0044	0.0020
rs6532798	−0.0002	0.0138	9.64E-01	1.80E-10	0.0047	0.0022
rs6562773	0.0093	−0.0121	3.27E-02	2.00E-09	0.0044	0.0020
rs6572807	−0.0065	0.0125	1.83E-01	2.90E-08	0.0049	0.0022
rs66511648	−0.0297	0.0068	6.03E-10	2.10E-03	0.0048	0.0022
rs6656912	−0.0252	0.0010	6.50E-09	6.20E-01	0.0043	0.0020

(Cont'd...)

Table S9. ***(Continued)***

	Adjusted for triglycerides					
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs676210	0.0053	−0.0735	3.21E-01	7.10E-198	0.0053	0.0024
rs67981690	−0.0031	0.0299	6.27E-01	8.30E-24	0.0064	0.0030
rs67981811	0.0620	−0.0232	1.14E-18	9.80E-14	0.0070	0.0031
rs6800707	−0.0029	0.0299	6.04E-01	5.30E-32	0.0056	0.0025
rs6805924	0.0028	0.0110	5.13E-01	4.50E-08	0.0043	0.0020
rs684773	0.0013	0.0291	7.98E-01	2.50E-35	0.0051	0.0023
rs6882076	0.0083	0.0331	6.38E-02	4.90E-58	0.0045	0.0021
rs696825	0.0030	−0.0203	5.46E-01	7.50E-19	0.0049	0.0023
rs698927	−0.0052	−0.0183	3.60E-01	9.20E-13	0.0057	0.0026
rs6999569	0.0040	−0.0861	3.56E-01	1.00E-200	0.0043	0.0020
rs7000494	0.0005	0.1365	9.71E-01	8.00E-121	0.0128	0.0058
rs7077812	−0.0051	0.0142	3.41E-01	1.40E-08	0.0054	0.0025
rs7134375	0.0054	−0.0171	2.11E-01	1.20E-17	0.0043	0.0020
rs7135509	0.0136	−0.0121	4.39E-03	4.10E-08	0.0048	0.0022
rs71368855	−0.0036	0.0261	5.93E-01	7.80E-17	0.0068	0.0031
rs7140110	−0.0016	0.0283	7.37E-01	1.20E-38	0.0048	0.0022
rs7152906	−0.0258	0.0045	1.87E-09	2.50E-02	0.0043	0.0020
rs71538127	0.0128	0.0176	5.86E-02	6.20E-09	0.0068	0.0030
rs71603401	−0.0099	0.0265	1.20E-01	1.10E-19	0.0064	0.0029
rs7215055	0.0060	0.0389	4.95E-01	2.30E-21	0.0088	0.0041
rs7239575	−0.0071	−0.0161	9.85E-02	6.80E-16	0.0043	0.0020
rs7241572	0.0323	0.0052	2.43E-09	3.60E-02	0.0054	0.0025
rs7244	0.0022	0.0152	6.94E-01	6.40E-09	0.0057	0.0026
rs72555385	0.0057	0.0654	5.80E-01	1.70E-45	0.0103	0.0046
rs72644085	−0.0007	−0.0196	9.15E-01	3.20E-12	0.0061	0.0028
rs7274718	−0.0005	0.0159	9.18E-01	3.80E-15	0.0044	0.0020
rs72784786	−0.0074	0.0263	4.14E-01	2.60E-10	0.0091	0.0042
rs72801474	−0.0044	−0.0308	5.55E-01	3.60E-19	0.0075	0.0034
rs72948506	0.0265	0.0058	1.72E-08	7.70E-03	0.0047	0.0022
rs729761	0.0004	0.0178	9.31E-01	9.50E-16	0.0048	0.0022
rs73025562	−0.0046	0.0139	3.62E-01	2.00E-09	0.0050	0.0023
rs7308584	0.0015	0.0150	7.88E-01	5.30E-09	0.0056	0.0026
rs7400002	0.0004	0.0140	9.34E-01	3.60E-09	0.0052	0.0024
rs74090351	−0.0180	−0.0250	3.50E-02	2.10E-10	0.0085	0.0039
rs742036	0.0050	−0.0144	2.63E-01	2.50E-12	0.0045	0.0021
rs75268115	−0.0034	−0.0207	6.58E-01	6.80E-09	0.0077	0.0036
rs754287	−0.0289	−0.0028	1.31E-10	1.80E-01	0.0045	0.0021
rs7551758	−0.0283	0.0002	5.11E-11	9.20E-01	0.0043	0.0020
rs75609851	0.0251	−0.1991	2.49E-01	1.60E-87	0.0218	0.0100
rs75721796	−0.0020	0.0210	7.27E-01	1.20E-17	0.0057	0.0025
rs75942983	0.0015	−0.0201	8.46E-01	2.50E-08	0.0079	0.0036
rs76954012	0.0412	0.0017	2.41E-08	6.20E-01	0.0074	0.0034

(Cont'd...)

Table S9. ***(Continued)***

	Adjusted for triglycerides					
SNP	**Beta.mdd**	**Beta.bmi**	**Pval.mdd**	**Pval.bmi**	**Se.mdd**	**Se.bmi**
rs77009508	−0.0030	0.0451	7.15E-01	1.80E-32	0.0083	0.0038
rs7704653	0.0084	0.0158	8.10E-02	2.30E-12	0.0048	0.0022
rs7714361	0.0089	0.0139	8.29E-02	4.40E-09	0.0051	0.0024
rs7725715	0.0290	−0.0068	1.61E-11	6.60E-04	0.0043	0.0020
rs7735249	0.0072	0.0269	2.97E-01	1.90E-17	0.0069	0.0032
rs7786339	0.0080	0.0163	1.71E-01	7.60E-10	0.0058	0.0027
rs78058190	0.0084	0.0816	4.55E-01	1.70E-57	0.0112	0.0051
rs7847285	0.0059	−0.0116	1.80E-01	1.00E-08	0.0044	0.0020
rs78484485	−0.0055	−0.0759	5.59E-01	1.20E-66	0.0094	0.0044
rs78588343	−0.0157	−0.0155	5.20E-03	2.50E-09	0.0056	0.0026
rs7861679	0.0105	0.0122	2.51E-02	1.80E-08	0.0047	0.0022
rs79153732	0.0156	0.0774	3.45E-01	2.00E-24	0.0165	0.0076
rs79287178	−0.0190	0.0501	1.54E-01	7.20E-17	0.0133	0.0060
rs79357714	0.0011	−0.0289	9.12E-01	1.20E-09	0.0103	0.0048
rs7947951	−0.0044	0.0194	3.44E-01	1.40E-19	0.0046	0.0021
rs80276949	−0.0005	0.0458	9.73E-01	8.00E-12	0.0149	0.0067
rs8102873	−0.0041	0.0123	3.51E-01	9.40E-10	0.0044	0.0020
rs8126001	0.0001	−0.0164	9.77E-01	2.40E-16	0.0044	0.0020
rs852388	0.0094	0.0157	8.19E-02	1.60E-10	0.0054	0.0025
rs867939	−0.0028	−0.0136	5.21E-01	1.80E-11	0.0044	0.0020
rs880315	−0.0108	−0.0118	1.90E-02	2.20E-08	0.0046	0.0021
rs921971	0.0116	0.0157	1.69E-02	4.00E-12	0.0048	0.0023
rs9364755	−0.0283	0.0031	3.49E-08	1.90E-01	0.0051	0.0024
rs9373056	0.0031	−0.0123	4.94E-01	7.20E-09	0.0046	0.0021
rs9376511	0.0056	−0.0155	2.97E-01	3.20E-10	0.0053	0.0025
rs9425589	0.0045	−0.0138	3.05E-01	6.20E-12	0.0044	0.0020
rs9436661	−0.0024	−0.0777	5.91E-01	1.00E-200	0.0045	0.0021
rs9480889	0.0045	0.0163	3.92E-01	1.30E-11	0.0052	0.0024
rs9529218	−0.0340	−0.0095	2.23E-10	1.30E-04	0.0054	0.0025
rs9536381	0.0255	0.0063	2.62E-08	3.10E-03	0.0046	0.0021
rs954244	0.0171	0.0153	5.51E-04	1.60E-11	0.0050	0.0023
rs9561643	−0.0015	0.0167	7.49E-01	6.50E-15	0.0046	0.0021
rs9584870	0.0142	−0.0124	1.83E-03	4.30E-09	0.0045	0.0021
rs970069	−0.0016	0.0162	7.67E-01	2.60E-11	0.0053	0.0024
rs9831084	0.0011	−0.0119	8.06E-01	2.90E-09	0.0043	0.0020
rs9831249	−0.0247	−0.0018	1.41E-08	3.60E-01	0.0044	0.0020
rs9831648	−0.0292	0.0080	1.59E-08	7.30E-04	0.0052	0.0024
rs9859117	−0.0088	0.0148	1.02E-01	2.40E-09	0.0054	0.0025
rs9889402	−0.0017	0.0123	7.19E-01	3.60E-08	0.0048	0.0022
rs9902027	0.0134	−0.0152	9.29E-03	2.10E-10	0.0052	0.0024
rs998584	0.0033	0.0401	4.47E-01	2.20E-90	0.0044	0.0020

Abbreviations: bmi: Body mass index; mdd: Major depression disorder; Pval: *P*-value; Se: Standard error; SNP: Single-nucleotide polymorphism; TG: Triglycerides.

Table S10. Primary and sensitivity analyses for all multivariable Mendelian randomization analyses

Exposure	b	SE	Pval	Lo_ CI	Up_ CI	OR	OR_ lci 95	OR_ uci 95	Heterogeneity test (pval)	MR-Egger pleiotropy	*F*-statistics
Major depression disorder	0.26	0.12	0.04	0.02	0.51	1.30	1.02	1.66	0.34	Intercept = −0.02, *P*=0.40	7.47
Triglycerides || id: ieu-b-111	0.20	0.06	0.00	0.08	0.32	1.22	1.08	1.38			97.85
Major depression disorder	0.31	0.14	0.02	0.04	0.58	1.36	1.04	1.79	0.19	Intercept = −0.009, *P*=0.04 (MR-PRESSO no outlier, *P*=0.18)	16.25
Smoking initiation	0.26	0.12	0.03	0.03	0.50	1.30	1.03	1.65			30.77
Major depression disorder	0.36	0.13	0.01	0.10	0.62	1.43	1.10	1.86	0.55	Intercept = −0.005, *P*=0.49	25.62
Alcoholic drinks per week || id: ieu-b-73	1.22	0.32	0.00	0.60	1.84	3.38	1.82	6.28			22.71
Major depression disorder	0.30	0.13	0.02	0.05	0.55	1.35	1.06	1.73	0.01	Intercept = −0.004, *P*=0.08	8.12
Body mass index (BMI) || id: ukb-a-248	0.02	0.09	0.82	−0.16	0.20	1.02	0.86	1.22			49.87
Major depression disorder	0.45	0.15	0.00	0.15	0.74	1.56	1.17	2.09	0.03	Intercept = −0.006, *P*=0.20	12.24
Type 2 diabetes || id: ebi-a-GCST006867	0.12	0.04	0.00	0.04	0.20	1.13	1.04	1.22			56.70

Abbreviations: CI: Confidence interval; MR-PRESSO: Mendelian randomization pleiotropy residual sum and outlier; OR: Odds ratio; Pval: *P*-value; SE: Standard error.

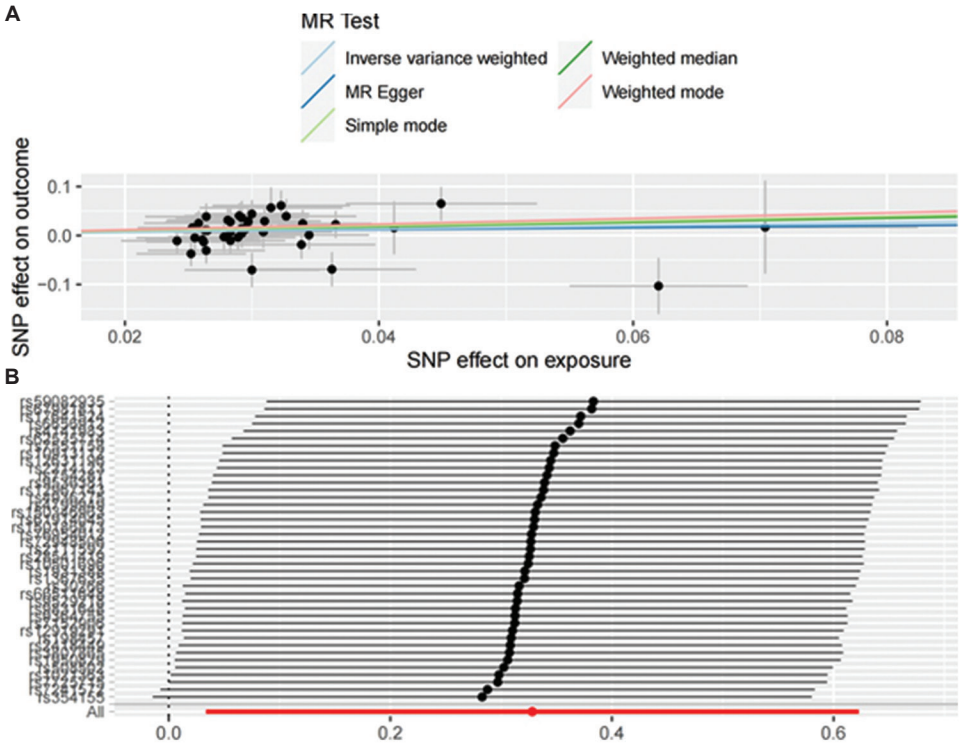

Figure S1. Scatter plot and leave-one-out sensitivity analyses of the causal effect of depression on chronic pancreatitis. (A) Scatter plot for the MR analysis of the causal effect of depression on chronic pancreatitis and (B) MR leave-one-out sensitivity analysis for the causal effect of depression on chronic pancreatitis. Abbreviations: MR: Mendelian randomization; SNP: Single-nucleotide polymorphism.

Table S11. Primary and sensitivity analyses for all two-step Mendelian randomization analyses

Mediator	Beta	SE	Pval	Pleiotropy	Heterogeneity
Exposure-->Mediators (TSMR)					
Smoking initiation	0.22	0.04	1.46E-07	0.25	Q_pval=5.13e-22, random effects model: *P*=1.46e-07
Triglycerides	0.10	0.02	3.30E-04	0.95	Q_pval=1.32e-07, random effects model: *P*=3.30e-04
Type 2 diabetes	0.21	0.07	1.88E-03	0.87	Q_pval=7.90e-07, random effects model: *P*=1.88e-03
Mediators-->Outcome (MVMR)					
Smoking initiation	0.26	0.12	0.03	0.18	0.19
Triglycerides	0.20	0.06	1.17E-03	0.40	0.34
Type 2 diabetes	0.12	0.04	3.46E-03	0.20	0.03

Abbreviations: MVMR: Multivariable Mendelian randomization; Pval: *P*-value; SE: Standard error; TSMR: Two-sample Mendelian randomization.

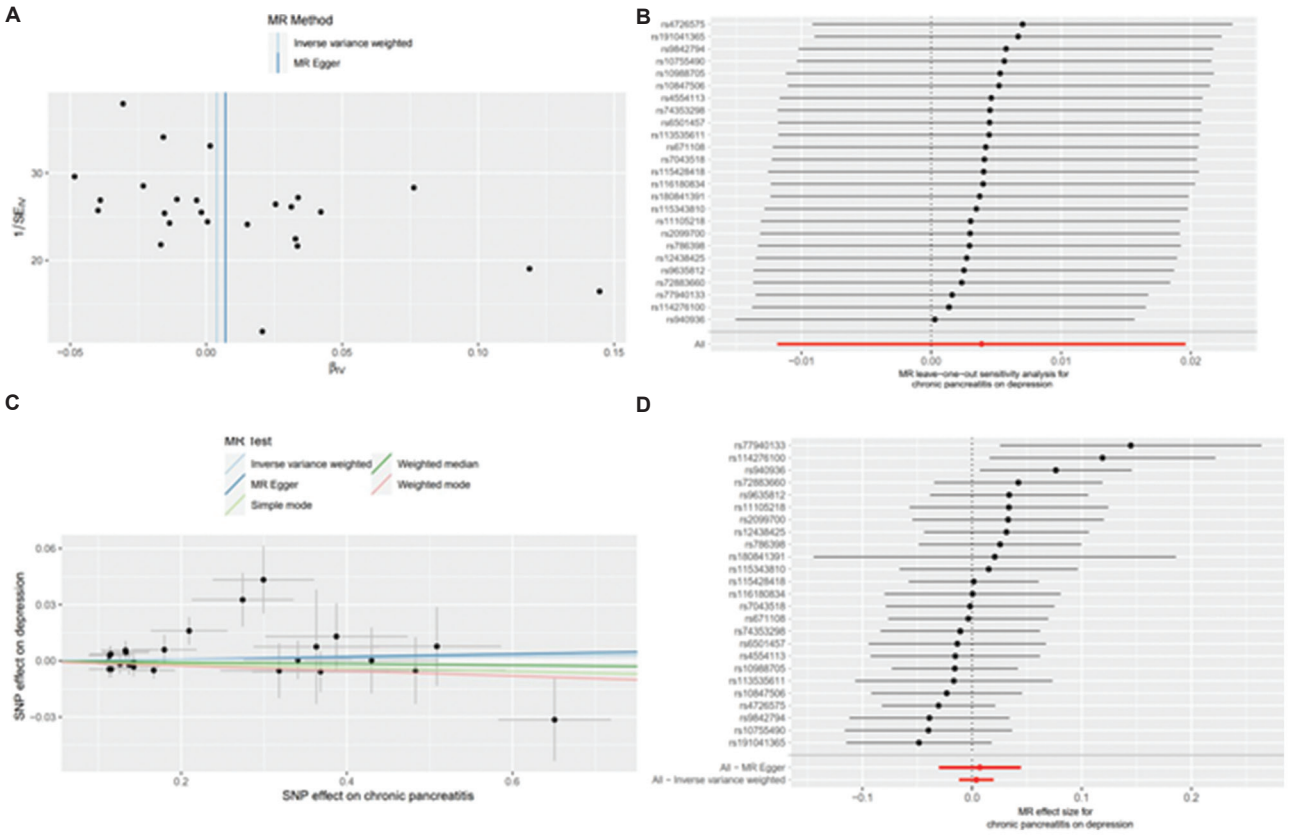

Figure S2. Sensitivity analyses of the association between chronic pancreatitis and depression (A) MR Funnel plot of the association between chronic pancreatitis and depression. (B) MR leave-one-out sensitivity analysis of the association between chronic pancreatitis and depression. (C) Scatter plot of the association between chronic pancreatitis and depression. (D) MR effect size for the association between chronic pancreatitis on depression. Abbreviations: MR: Mendelian randomization; SNP: Single-nucleotide polymorphism.

STROBE-MR checklist

STROBE-MR checklist				
Item No.	**Section**	**Checklist item**	**Page No.**	**Relevant text from manuscript**
1	TITLE and ABSTRACT	Indicate MR as the study's design in the title and/or the abstract if that is a main purpose of the study.	1 – 3	Title page
	INTRODUCTION			
2	Background	Explain the scientific background and rationale for the reported study. What is the exposure? Is a potential causal relationship between exposure and outcome plausible? Justify why MR is a helpful method to address the study question.	4 – 6	Introduction section
3	Objectives	State specific objectives clearly, including pre-specified causal hypotheses (if any). State that MR is a method that, under specific assumptions, intends to estimate causal effects.	5 – 6	"However, it is unknown whether long-term depression increasing the incidence of CP due to inflammation and immune response disorders." "We explored the causal relationship between depression and CP by conducting a two-sample bidirectional MR analysis using summary statistical data from non-overlapping samples of a genome-wide association study." "Mendelian randomization (MR) is a data analysis method in epidemiology that explores causal inference. It uses genetic variations closely related to exposure factors as instrumental variables (IVs) to evaluate the causal relationship between exposure and outcome events."
	METHODS			
4	Study design and data sources	Present key elements of the study design early in the article. Consider including a table listing sources of data for all phases of the study. For each data source contributing to the analysis, describe the following:	6 – 13	
4a		Setting: Describe the study design and the underlying population, if possible. Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection, when available.	6 – 9	Materials and Methods: "We conducted a two-sample bidirectional MR, first using depression as the exposure factor, CP as the outcome event, and then the opposite. We used multivariable MR analysis to adjust for potential confounding factors to reveal the direct causal effect of depression on CP." "MR analysis was conducted mainly using the R software packages 'TwoSample MR' version 0.5.7 and 'Mendelian Randomization' version 0.9.0. Furthermore, this study is conducted according to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guideline, specific for MR (STROBE-MR)." Genetic instruments and data sources for depression "The GWAS summary statistical data for depression comes from the Psychiatric Genomics Consortium (the largest biological investigation in the history of psychiatry) and UK Biobank, including meta-analyses of 33 cohorts from the Psychiatric Genomics Consortium (excluding 23andMe and the UK Biobank data) focused on clinically-derived phenotypes for Major Depression Disorder (MDD) and the broad depression phenotype in the full release of the UK Biobank." Genetic instruments and data sources for chronic pancreatitis "The GWAS summary statistical data for CP come from the latest R9 version of the FinnGen Consortium data. The total number of individuals in this data is 377,277 (210,870 males and 166,407 females), with 20,175,454 variables analyzed."

(Cont'd...)

STROBE-MR checklist				
Item No.	**Section**	**Checklist item**	**Page No.**	**Relevant text from manuscript**
4b		Participants: Give the eligibility criteria, and the sources and methods of selection of participants. Report the sample size, and whether any power or sample size calculations were carried out before the main analysis.	9, 13	Genetic instruments and data sources for depression "The total sample size in this data is 500,199 (170,756 cases and 329,443 controls), with 8,483,301 variables analyzed." Genetic instruments and data sources for chronic pancreatitis "The total number of individuals in this data is 377,277 (210,870 males and 166,407 females)." Sample Size Calculation "The statistical power for each MR analysis was calculated using an online power calculator for MR with a binary outcome. (https://shiny.cnsgenomics.com/mRnd/)."
4c		Describe measurement, quality control and selection of genetic variants.	8 – 11	IV Selection Criteria "We selected SNPs at the whole genome significance level ($P<5 \times 10^{-8}$), meanwhile extracted SNPs with relatively long physical distances and a low probability of linkage imbalance ($R^2<0.001$ within 10,000 kb) to ensure we can obtain the lowest GWAS correlation *P*-value." Quality Control "We excluded palindromic SNPs with intermediate allele frequencies to ensure consistent impact on both phenotypes relative to the same allele. In addition, a fundamental assumption of MR design is that SNP should only affect outcomes through exposure. Therefore, we examined whether each exposed SNP was associated with common confounding factors (smoking, alcohol, household income, and body mass index, etc.) through the Phenoscanner database."
4d		For each exposure, outcome, and other relevant variables, describe methods of assessment and diagnostic criteria for diseases.	9 – 10	"The GWAS summary statistical data for depression includes clinically-derived phenotypes for Major Depression Disorder (MDD) and the broad depression phenotype in the UK Biobank." "The ICD-8, ICD-9, and ICD-10 codes define CP's endpoint and registry filters." "We selected smoking, drinking, type 2 diabetes, BMI, and triglycerides as multivariable confounding factors, exploring the direct effect of depression on CP. These instrumental variables were selected from the latest and largest authoritative studies." "We combined clinical manifestations and relevant MR literature to explore potential mediating factors. In relevant MR studies, depression is associated with multiple factors, while lifestyle, disease factors, biochemical indices, lipid and glucose metabolism, and obesity characteristics are associated with CP." "The genetic instrumental variables of these potential mediating factors were extracted from a publicly available large and authoritative GWAS database."
4e		Provide details of Ethics Committee approval and participant informed consent, if relevant.	8	"The corresponding institutional review and ethics committees have approved the included studies."
5	Assumptions	Explicitly state the three core IV assumptions for the main analysis (relevance, independence and exclusion restriction) as well assumptions for any additional or sensitivity analysis.	6 – 7	"First, genetic variations used as instrumental variables should have a high correlation with exposure elements. Second, the selected instrumental variables cannot be associated with confounding factors. Third, exposures should be the only way instrumental variables affect outcomes."
6	Statistical methods: Main analysis	Describe statistical methods and statistics used.	8, 12 – 15	"MR analysis was conducted mainly using the R software packages 'TwoSampleMR' version 0.5.7 and 'MendelianRandomization' version 0.9.0." "We performed Two-sample MR (TSMR) analyses using inverse-variance weighted (IVW), weighted median, MR-Egger regression, simple mode, and weighted mode methods. Among them, we applied the inverse variance weighted (IVW) method as the primary analysis."

(Cont'd...)

STROBE-MR checklist				
Item No.	**Section**	**Checklist item**	**Page No.**	**Relevant text from manuscript**
6a		Describe how quantitative variables were handled in the analyses (i.e., scale, units, model).	11 – 12	"We selected SNPs at the whole genome significance level ($P<5 \times 10^{-8}$), meanwhile extracted SNPs with relatively long physical distances and a low probability of linkage imbalance ($R^2<0.001$ within 10,000 kb) to ensure we can obtain the lowest GWAS correlation *P*-value." "When CP was used as an exposure factor, we adopted a less stringent *P*-threshold of 1×10^{-5} to obtain more SNPs for CP, as <10 independent SNPs reached genome-wide significance and low linkage imbalance according to the above criteria. MAF values of the IVs for exposure factors should be >0.01. " "For each variant in the genetic instruments, the strength of the selected instrument was evaluated by calculating the *F*-statistics using the formula (R^2 represents the proportion of the variability of the phenotype explained by each instrument and N represents the sample size) and *F*-statistics below 10 may indicate the presence of weak instrument bias."
6b		Describe how genetic variants were handled in the analyses and, if applicable, how their weights were selected.	11, supplementary tables	"We selected SNPs at the whole genome significance level ($P<5 \times 10^{-8}$), meanwhile extracted SNPs with relatively long physical distances and a low probability of linkage imbalance ($R^2<0.001$ within 10,000 kb) to ensure we can obtain the lowest GWAS correlation *P*-value." "We excluded palindromic SNPs with intermediate allele frequencies to ensure consistent impact on both phenotypes relative to the same allele." More details are shown in the supplementary tables.
6c		Describe the MR estimator (e.g., two-stage least squares, Wald ratio) and related statistics. Detail the included covariates and, in case of two-sample MR, whether the same covariate set was used for adjustment in the two samples.	6 – 7	"To obtain an estimate of the total causal effect, we performed Two-sample MR (TSMR) analyses using inverse-variance weighted (IVW), weighted median, MR-Egger regression, simple mode, and weighted mode methods. Among them, we applied the inverse variance weighted (IVW) method as the primary analysis." "In multivariable MR analyses, the association between depression and CP persisted after adjusting for five other exposures (triglycerides, smoking initiation, alcoholic drinks per week, body mass index, and type 2 diabetes)." "We used two-step MR analysis, and the results showed that the genetic susceptibility to depression was significantly related to higher triglyceride levels, smoking initiation, and higher risk of type 2 diabetes."
6d		Explain how missing data were addressed.	NA	No missing data.
6e		If applicable, indicate how multiple testing was addressed.	13	"The statistical power for each MR analysis was calculated using an online power calculator for MR with a binary outcome. (https://shiny.cnsgenomics.com/mRnd/)" "We applied the inverse variance weighted (IVW) method as the primary analysis. The weighted median method was used to confirm the results further. Based on the InSIDE hypothesis, MR Egger regression provided a consistent causal effect estimate, and its intercept represented the effect estimate of horizontal pleiotropy. MR Egger regression could still obtain unbiased estimates when the horizontal pleiotropy of IVs was present. Simple mode and weighted mode were conducted as complementary analyses. We tested multiple instrumental variables for horizontal pleiotropy using MR Egger to assess potential violations of the MR hypothesis. The heterogeneity between causal estimates for each SNP was evaluated using the Cochran Q test. We tested the sensitivity of causal inference to any individual genetic variation through leave-one-out analysis. "
7	Assessment of assumptions	Describe any methods or prior knowledge used to assess the assumptions or justify their validity.	Supplementary tables and figures	We have assessed the assumptions using MR-Egger regression and Cochran Q tests. Details are shown in the supplementary tables and figures.

(Cont'd...)

STROBE-MR checklist				
Item No.	**Section**	**Checklist item**	**Page No.**	**Relevant text from manuscript**
8	Sensitivity analyses and additional analyses	Describe any sensitivity analyses or additional analyses performed (e.g., comparison of effect estimates from different approaches, independent replication, bias analytic techniques, validation of instruments, and simulations).	13 – 15	"Among them, we applied the inverse variance weighted (IVW) method as the primary analysis. The weighted median method was used to confirm the results further. Based on the InSIDE hypothesis, MR Egger regression provided a consistent causal effect estimate, and its intercept represented the effect estimate of horizontal pleiotropy. MR Egger regression could still obtain unbiased estimates when the horizontal pleiotropy of IVs was present. Simple mode and weighted mode were conducted as complementary analyses. We tested multiple instrumental variables for horizontal pleiotropy using MR Egger to assess potential violations of the MR hypothesis. The heterogeneity between causal estimates for each SNP was evaluated using the Cochran Q test. We tested the sensitivity of causal inference to any individual genetic variation through Leave-one-out analysis. Multivariable MR IVW was used to assess the causal effect and to determine heterogeneity. Multivariable MR Egger regression and MR-PRESSO were used to detect the pleiotropy for multivariable MR. The MR-PRESSO method could detect SNP outliers with multiple effects and provide the same estimated value as IVW after removing these outliers. Besides, we tested conditional F statistics to evaluate the strength of the selected instruments through the "MVMR' R package."
9	Software and preregistration	a) Name statistical software and package(s), including version and settings used. b) State whether the study protocol and details were pre-registered (as well as when and where).	8	"MR analysis was conducted mainly using the R software packages "TwoSampleMR" version 0.5.7 and "MendelianRandomization" version 0.9.0. Furthermore, this study is conducted according to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guideline, specific for MR (STROBE-MR) (Checklist)."
	RESULTS			
10	Descriptive data	a) Report the numbers of individuals at each stage of included studies and reasons for exclusion. Consider use of a flow diagram. b) Report summary statistics for phenotypic exposure(s), outcome(s), and other relevant variables (e.g., means, SDs, proportions). c) If the data sources include meta-analyses of previous studies, provide the assessments of heterogeneity across these studies. d) For two-sample MR: i. Provide justification of the similarity of the genetic variant-exposure associations between the exposure and outcome samples and ii. provide information on the number of individuals who overlap between the exposure and outcome studies.		a) The flow diagram for the screening and exclusion process is shown in Figure 2. b) Figure 2, Supplementary figures and tables c) NA d) We collected data on depression and CP using summary statistical data from non-overlapping samples from a genome-wide association study (GWAS).

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STROBE-MR checklist				
Item No.	**Section**	**Checklist item**	**Page No.**	**Relevant text from manuscript**
11	Main results	a) Report the associations between genetic variant and exposure, and between genetic variant and outcome, preferably on an interpretable scale. b) Report MR estimates of the relationship between exposure and outcome, and the measures of uncertainty from the MR analysis, on an interpretable scale, such as odds ratio or relative risk per SD difference. c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period. d) Consider plots to visualize results (e.g., forest plot, scatterplot of associations between genetic variants and outcome versus between genetic variants and exposure).	15 – 18	a) Supplementary figures and tables "Following the criteria of the IVs selection, 41 and 25 independent SNPs were ultimately selected as the IVs for depression and CP, respectively (Supplementary Tables 4 and 5). All F-statistics for IVs exceeded 10, which suggested strong instrument variables (Supplementary Tables 4, 5, and 8)." "Our MR analysis showed that using the IVW method, depression had a positive association with CP, finding that the odds ratio of CP per 1-standard deviation increase in depression was 1.39 (95% CI: 1.03 – 1.86; *P*=0.03) (Figure 3). This result was consistent with the weighted median (WM) sensitivity analysis, which showed 1.56 (95% CI: 1.04 – 2.35; *P*=0.03) (Figure 3). The results were further validated using the MR Egger test, which revealed no indication of horizontal pleiotropy (*P*=0.89). The IVW approach did not exhibit heterogeneity according to the Cochran Q statistic (Q=40.81, *P*=0.44). The statistical power of the MR analysis of depression on CP also exceeded 0.8, indicating that the probability of making Type II errors was relatively low. In the MR analysis, we did not find evidence of a causal effect of CP on depression (IVW: odds ratio [OR] 1.004; 95% CI: 0.99 – 1.02; *P*=0.63). (Supplementary Tables 6 and 7, Supplementary Figures 1 and 2). Multivariable MR analysis In multivariable MR analyses, the association between depression and CP persisted after adjusting for five other exposures (triglycerides, smoking initiation, alcoholic drinks per week, body mass index, and type 2 diabetes). In sensitivity analyses, no horizontal pleiotropy was detected by multivariable MR-Egger regression, except for major depression disorder adjusted for smoking initiation (Intercept=−0.009, *P*=0.04). However, no outlier was found through the MR-PRESSO method, and the global test P-value was 0.18, with no evidence of horizontal pleiotropy. Mild heterogeneity was observed when adjusting for BMI and type 2 diabetes. For the F statistical data of multivariable MR, all conditional F statistics exceeded 10 except for the depression adjusting for triglycerides and BMI, which may indicate weak IVs. (Figure 4) (Supplementary Tables 8, 9, and 10). Mediate through smoking initiation, triglycerides, and type 2 diabetes We used two-step MR analysis, and the results showed that the genetic susceptibility to depression was significantly related to higher triglyceride levels37, smoking initiation38, and higher risk of type 2 diabetes39. (Supplementary Table 11) Among them, evidence of the causal relationship between depression and CP was observed indirectly through triglycerides (odds ratio [OR]1.02; 95% CI: 1.01 – 1.04; *P*=0.004), type 2 diabetes (odds ratio [OR] 1.03; 95% CI: 1.01 – 1.06; *P*=0.030), and smoking initiation (odds ratio [OR] 1.06; 95% CI: 1.01 – 1.13; *P*=0.046). As is shown in Table 1, Mediation analyses indicated that triglycerides, type 2 diabetes, and smoking initiation contribute 6.14%, 7.84%, and 17.06% of the effect from depression to CP, respectively. Moreover, no horizontal pleiotropy was detected in all two-step MR analyses. Furthermore, in all two-step MR analyses, no horizontal pleiotropy was observed." c) NA d) Figures 3 and 4
12	Assessment of assumptions	a) Report the assessment of the validity of the assumptions. b) Report any additional statistics (e.g., assessments of heterogeneity across genetic variants, such as I2, Q statistic or E-value).	15 – 17	Two-sample bidirectional MR "We tested multiple instrumental variables for horizontal pleiotropy using MR Egger to assess potential violations of the MR hypothesis." "The heterogeneity between causal estimates for each SNP was evaluated using the Cochran Q test." "We tested the sensitivity of causal inference to any individual genetic variation through leave-one-out analysis." Multivariable MR

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				"In multivariable MR analyses, the association between depression and CP persisted after adjusting for five other exposures (triglycerides, smoking initiation, alcoholic drinks per week, body mass index, and type 2 diabetes)." "Multivariable MR Egger regression and Mendelian Randomization Pleiotropy RESidual Sum and Outlier (MR-PRESSO) were used to detect the pleiotropy for multivariable MR." "We used two-step MR analysis, and the results showed that the genetic susceptibility to depression was significantly related to higher triglyceride levels, smoking initiation, and higher risk of type 2 diabetes." "No horizontal pleiotropy was detected in all two-step MR analyses." Additional statistics are shown in Supplementary tables 6, 7, 10, and 11 two-sample bidirectional MR "The heterogeneity between causal estimates for each SNP was evaluated using the Cochran Q test." "The IVW approach did not exhibit heterogeneity according to the Cochran Q statistic (Q=40.81, *P*=0.44)." Multivariable MR "Multivariable MR Egger regression and Mendelian Randomization Pleiotropy RESidual Sum and Outlier (MR-PRESSO) were used to detect the pleiotropy for multivariable MR." "Mild heterogeneity was observed when adjusting for BMI and type 2 diabetes."
13	Sensitivity analyses and additional analyses	a) Report any sensitivity analyses to assess the robustness of the main results to violations of the assumptions. b) Report results from other sensitivity analyses or additional analyses. c) Report any assessment of direction of causal relationship (e.g., bidirectional MR). d) When relevant, report and compare with estimates from non-MR analyses. e) Consider additional plots to visualize results (e.g., leave-one-out analyses).	15 – 17	"The results were further validated using the MR Egger test, which revealed no indication of horizontal pleiotropy (*P*=0.89). The IVW approach did not exhibit heterogeneity according to the Cochran Q statistic (Q=40.81, *P*=0.44). We tested the sensitivity of causal inference to any individual genetic variation through leave-one-out analysis." "In multivariable MR analyses, the association between depression and CP persisted after adjusting for five other exposures (triglycerides, smoking initiation, alcoholic drinks per week, body mass index, and type 2 diabetes)." "Multivariable MR Egger regression and Mendelian Randomization Pleiotropy RESidual Sum and Outlier (MR-PRESSO) were used to detect the pleiotropy for multivariable MR. No horizontal pleiotropy was detected by multivariable MR-Egger regression, except for major depression disorder adjusted for smoking initiation (Intercept=−0.009, *P*=0.04). However, no outlier was found through the MR-PRESSO method, and the global test P-value was 0.18, with no evidence of horizontal pleiotropy." "We did not find evidence of a causal effect of CP on depression (IVW: odds ratio [OR] 1.004; 95% CI: 0.99 – 1.02; *P*=0.63)." d) NA e) We tested the sensitivity of causal inference to any individual genetic variation through Leave-one-out analysis. Additional plots: Supplementary Figures 1 and 2.
	DISCUSSION			
14	Key results	Summarize key results with reference to study objectives.	19 – 24	"In this study, we applied two-step MR and TSMR analyses to investigate the causality between depression and CP using summary data from GWASs. The MR-IVW forward analysis revealed evidence of a genetic vulnerability to depression linked to an elevated risk of CP. In contrast, genetic liability to CP was not associated with depression in the reverse MR-IVW analysis. Two-step MR analyses indicated that the association between depression and CP was mediated by triglycerides, smoking initiation, and type 2 diabetes. MR study has indicated that smoking initiation, as well as higher triglyceride levels, were associated with an increased risk of CP. This study also provides evidence in support that type 2 diabetes and smoking are causally associated with the risk of acute pancreatitis (AP)."

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15	Limitations	Discuss limitations of the study, taking into account the validity of the IV assumptions, other sources of potential bias, and imprecision. Discuss both direction and magnitude of any potential bias and any efforts to address them.	24 – 26	"We undertook the first and relatively complete MR analysis with a positive result between depression and CP. This issue has yet to be studied separately or thoroughly explored. Compared to traditional observational studies, our study would reduce bias caused by reverse causality. Second, multivariable MR analysis was used to reveal a direct causal relationship between depression and chronic pancreatitis by adjusting for confounding factors. Furthermore, we conducted a sensitivity analysis to ensure consistency in causal estimation and robustness of results. This study still has certain limitations. First, MVMR models containing multiple exposures may weaken the efficacy of exposure instrumental variables (IVs), such as the causal effect of depression adjusted for triglycerides or BMI, which needs to be carefully explained due to the weak instrument bias (*F*-statistics<10). Second, the insignificant association between CP and depression should be interpreted with caution, for it may be related to insufficient validity or some confounding factors that were not considered. In this study, due to the limited number of IVs significantly associated with CP, IVs may not be sufficient to explain the association between CP and depression. By relaxing *P*-threshold for screening SNPs, we increased the degree of freedom of the instrumental variables, which also means increasing the possibility of horizontal pleiotropy and heterogeneity. Therefore, we conducted a rigorous sensitivity analysis to further validate and explain the relationship between CP and depression. Finally, because the population in this study is based on European ancestry, expanding our research findings to other populations should be done prudently, as future research on other non-European ancestry is needed."
16	Interpretation	a) Meaning: Give a cautious overall interpretation of results in the context of their limitations and in comparison with other studies. b) Mechanism: Discuss underlying biological mechanisms that could drive a potential causal relationship between the investigated exposure and the outcome, and whether the gene-environment equivalence assumption is reasonable. Use causal language carefully, clarifying that IV estimates may provide causal effects only under certain assumptions. c) Clinical relevance: Discuss whether the results have clinical or public policy relevance, and to what extent they inform effect sizes of possible interventions.	5, 19 – 24	a) "According to research reports, depression will increase the incidence rate and mortality of diabetes and obesity, both of which are related to increased inflammation. A series of studies have shown that patients with CP have a high incidence of depression. However, it is unknown whether long-term depression increasing the incidence of CP due to inflammation and immune response disorders." "Our study supports the independent causal effect of depression on CP. It may bring new insights into the correlation between depression and inflammation. In-depth study is necessary to clarify the pathophysiological mechanisms of the causal association." "Depression is associated with inflammation and immune response disorders, which may be related to the pathogenesis of chronic pancreatitis (CP). However, previous studies have not clearly determined whether long-term depression increases the incidence of CP due to inflammation and immune response disorders. Our study supports the independent causal effect of depression on CP through MR analysis, providing new insights into the correlation between depression and inflammation. The results need to be further validated in in-depth studies to reveal the underlying pathophysiological mechanisms." b) "There are some potential mechanisms that can try to explain the impact of depression on CP. The stress-responsive hypothalamic–pituitary–adrenal (HPA) axis has been demonstrated in the pathophysiology of depression. A series of studies have pointed out that depressed patients experienced higher ACTH and cortisol responses, which accelerates chronic inflammation and stimulates the immune response. In parallel, excessive activation of the HPA axis will inhibit the vagus nerve (VN). However, VN is sensitive to peripheral pro-inflammatory cytokines, such as interleukin (IL)-1, IL-6, and tumor necrosis factor (TNF), providing an important defense against infection/inflammation."

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				"Depression contributes to intestinal gut microbiota and metabolic disturbance by modulating the psycho-neuro-endocrine-immune system in the brain–gut axis. Disruption of gut microbiota and disruption of intestinal barrier function may lead to the migration of lipopolysaccharides to the pancreas, possibly by activating the NF - κ B and TLR signaling pathways, promoting the expression of inflammatory mediators such as IL-6 and IL-10, and polarization of macrophages, thereby promoting pancreatic fibrosis." c) "Our research holds that in depressive patients with type 2 diabetes, smoking behavior, and higher triglyceride levels, attention should be paid to the prevention of CP."
17	Generalizability	Discuss the generalizability of the study results (a) to other populations, (b) across other exposure periods/ timings, and (c) across other levels of exposure.	24 – 26	"The study results are based on a population of European ancestry, and caution should be exercised when generalizing these findings to other populations. Future research should include diverse populations to validate the results across different ethnic backgrounds." "Our study supports the independent causal effect of depression on CP. It may bring new insights into the correlation between depression and inflammation. In-depth study is necessary to clarify the pathophysiological mechanisms of the causal association." "Genetically predicted depression [per 1 standard deviation] had a positive association with CP (odds ratio [OR] 1.39; 95% CI 1.03 – 1.86; *P*=0.03). This suggests that higher levels of depression may have a stronger impact on CP risk. However, further studies are needed to explore the relationship across different levels of depression exposure to confirm this trend."
	OTHER INFORMATION			
18	Funding	Describe sources of funding and the role of funders in the present study and, if applicable, sources of funding for the databases and original study or studies on which the present study is based.	27	"This work was supported by the National Natural Science Foundation of China (Grant No. 81972655); Shanghai Industry-university Research Practice Project (2023); and Shanghai Jiao Tong University "Jiaotong Star" Plan Medical Engineering Cross Research Project (20230103, YG2021QN07)."
19	Data and data sharing	Provide the data used to perform all analyses or report where and how the data can be accessed, and reference these sources in the article. Provide the statistical code needed to reproduce the results in the article, or report whether the code is publicly accessible and if so, where.	26 – 27	"We thank the Finngen Study, PGC, GSCAN, IIBDGC, and GIANT for sharing data."
20	Conflicts of Interest	All authors should declare all potential conflicts of interest.	27	"The authors declare no competing interests."

Abbreviations: CI: Confidence interval; MR: Mendelian randomization; MR-PRESSO: Mendelian Randomization pleiotropy residual sum and outlier; PGC: Psychiatric genomics consortium; GSCAN: GWAS and sequencing consortium of alcohol and nicotine use; IIBDGC: The international inflammatory bowel disease genetics consortium; GIANT: Genetic investigation of anthropometric traits.

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