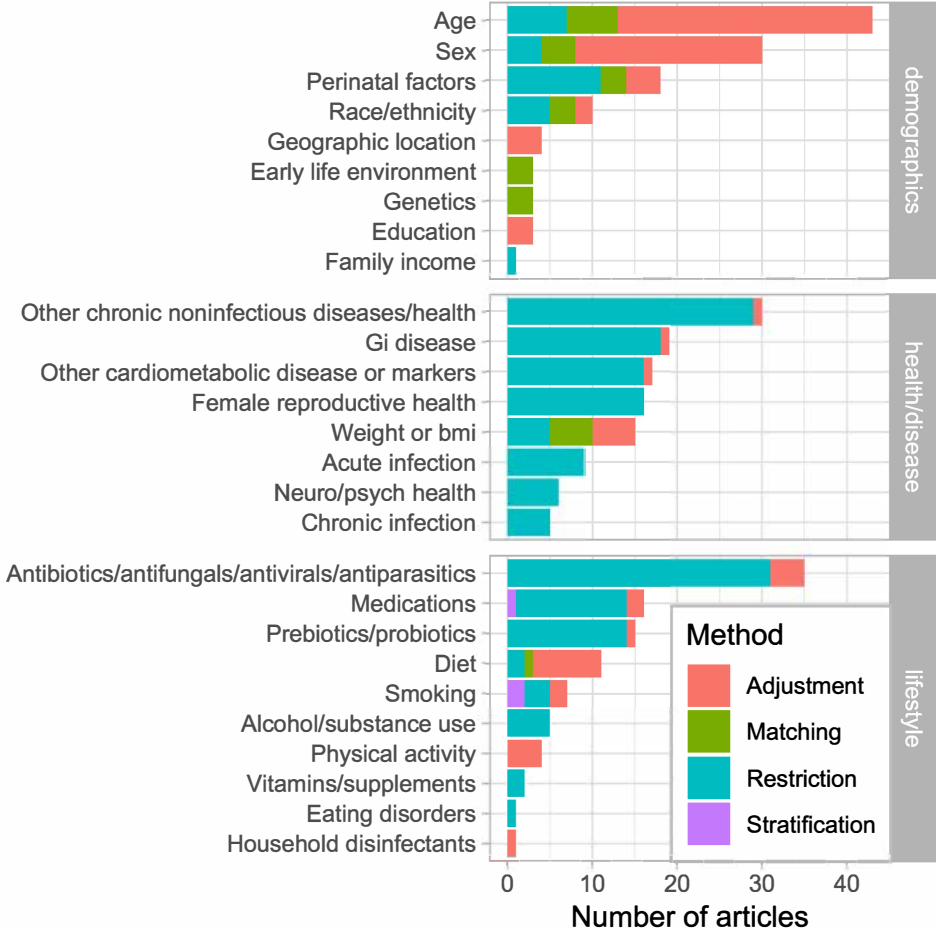


Supplemental Figure 1. Confounding variables, and methods used for their control, in the 16S microbiome literature on cardiometabolic phenotypes, 2009-2019 (n=71).



## Supplemental Figure 1

**Supplemental Table 1: Papers identified for Mini-Review of the Gut Microbiome and Metabolic Conditions and select characteristics**

Reference	PMID	Phenotype(s)	Study design	Temporal ordering	Recruitment	N
Aatsinki AK. et al. (2018)	29757063	weight gain	longitudinal cohort	improper ordering	Clinical	46
Al-Obaide MAI. et al. (2017)	28925931	type 2 diabetes	case-control	prevalent cases	Clinical	40
Andoh A. et al. (2016)	27499582	bmi	case-control	prevalent cases	Volunteer	20
Angelakis E. et al. (2015)	26356733	bmi	cross-sectional	ordering unclear b/c question unclear	Volunteer	10
Bai J. et al. (2019)	30417607	bmi	cross-sectional	ordering unclear b/c question unclear	Volunteer	411
Beaumont M. et al. (2016)	27666579	abdominal adiposity	longitudinal cohort	ordering unclear (question clear)	Volunteer	6,004
ChÃ1vez-Carbajal A. et al. (2019)	30669548	bmi, metabolic syndrome	cross-sectional	ordering unclear b/c question unclear	Clinical	67
Ciubotaru I. et al. (2015)	26209747	type 2 diabetes	longitudinal cohort	improper ordering	Volunteer	115
Crusell MKW. et al. (2018)	29764499	gestational diabetes	longitudinal cohort	proper ordering	Clinical	213
de la Cuesta-Zuluaga J. et al. (2018)	29142244	bmi, blood pressure, lipids, glucose, etc.	cross-sectional	ordering unclear b/c question unclear	Unclear	441
de la Cuesta-Zuluaga J. et al. (2018)	30054529	bmi, blood pressure, lipids, glucose, etc.	cross-sectional	ordering unclear b/c question unclear	Unclear	441
de la Cuesta-Zuluaga J. et al. (2018)	30591685	bmi, blood pressure	cross-sectional	ordering unclear b/c question unclear	Unclear	441
Del Chierico F. et al. (2018)	29922272	bmi	case-control	prevalent cases	Volunteer	68
Ferrocino I. et al. (2018)	30111822	gestational diabetes	longitudinal cohort	ordering unclear b/c question unclear	Clinical	41
Finucane MM. et al. (2014)	24416266	bmi	cross-sectional	prevalent cases	Volunteer	217
Fu J. et al. (2015)	26358192	bmi, lipids	cross-sectional	prevalent cases	Clinical	893
Gao R. et al. (2018)	29280312	bmi, lipids, glucose, insulin sensitivity	cross-sectional	ordering unclear b/c question unclear	Unclear	145
Gao X. et al. (2018)	29988340	bmi	cross-sectional	ordering unclear (question clear)	Unclear	551
Gomez-Arango LF. et al. (2016)	27217482	bmi, insulin, c-peptide, glucagon, etc.	cross-sectional	prevalent cases	Volunteer	70
Gomez-Arango LF. et al. (2016)	27528065	bmi, blood pressure	cross-sectional	ordering unclear (question clear)	Volunteer	205
Goodrich JK. et al. (2014)	25417156	bmi	cross-sectional	ordering unclear b/c question unclear	Volunteer	977
Gozd-Barszczewska A. et al. (2017)	28954482	bmi, lipids	case-control	prevalent cases	Clinical	40
He Y. et al. (2018)	30249275	bmi	cross-sectional	ordering unclear (question clear)	Community-based	6,896
Hoel H. et al. (2018)	29712976	type 2 diabetes	case-control	incident cases	Volunteer	84
Houttu N. et al. (2018)	29338886	bmi, lipids	cross-sectional	incident cases	Volunteer	99
Hsu CN. et al. (2018)	30469463	blood pressure, arterial stiffness	cross-sectional	prevalent cases	Clinical	86
Hu HJ. et al. (2015)	26230509	bmi, lipids	case-control	prevalent cases	Community-based	134

Huang Y. et al. (2018)	29733871	type 1 diabetes	case-control	prevalent cases	Unclear	22
Inoue R. et al. (2017)	29203964	type 2 diabetes, hba1c, glucose	case-control	prevalent cases	Clinical	22
Jackson MA. et al. (2018)	29985401	type 2 diabetes, hypertension, hypercholesterolemia	longitudinal cohort	improper ordering	Volunteer	2,737
Karvonen AM. et al. (2019)	30568265	bmi	cross-sectional	prevalent cases	Volunteer	502
Kasai C. et al. (2015)	26261039	bmi	cross-sectional	prevalent cases	Clinical	10
Kashtanova DA. et al. (2018)	30257444	bmi, glucose, blood pressure, type 2 diabetes	cross-sectional	prevalent cases	Unclear	92
Kelly TN. et al. (2016)	27507222	glucose, blood pressure, lipids	case-control	prevalent cases	Population-based	112
Koren O. et al. (2011)	20937873	atherosclerosis	case-control	incident cases	Population-based	30
Kostic AD. et al. (2015)	25662751	type 1 diabetes	case-control	incident cases	Clinical	33
Lambeth SM. et al. (2015)	26756039	type 2 diabetes, prediabetes	cross-sectional	ordering unclear b/c question unclear	Clinical	49
Larsen N. et al. (2010)	20140211	type 2 diabetes	case-control	ordering unclear b/c question unclear	Clinical	20
Le Roy CI. et al. (2018)	28767316	bmi, visceral fat	unclear	ordering unclear (question clear)	Volunteer	3,666
Leiva-Gea I. et al. (2018)	30224347	type 1 diabetes, maturity-onset diabetes in the young 2	case-control	prevalent cases	Unclear	43
Lim MY. et al. (2017)	27053630	metabolic syndrome	cross-sectional	prevalent cases	Community-based	655
Lopez-Contreras BE. et al. (2018)	29388394	bmi, lipids, insulin	unclear	prevalent cases	Volunteer	138
Mendez-Salazar EO. et al. (2018)	30386323	bmi	cross-sectional	prevalent cases	Community-based	36
Moreno-Indias I. et al. (2016)	28078038	insulin resistance	unclear	prevalent cases	Clinical	10
Moreno-Navarrete JM. et al. (2018)	29105287	subcutaneous and visceral adipose tissue browning	cross-sectional	prevalent cases	Clinical	34
Morkl S. et al. (2017)	29131365	bmi, adiposity, lipids	case-control	prevalent cases	Volunteer	106
Murugesan S. et al. (2015)	25761741	bmi, lipids	cross-sectional	prevalent cases	Community-based	190
Naderpoor N. et al. (2019)	30987356	bmi, adiposity, insulin	cross-sectional	prevalent cases	Volunteer	38
Org E. et al. (2017)	28407784	metabolic syndrome, glucose, lipids, insulin	cross-sectional	prevalent cases	Community-based	531
Ottosson F. et al. (2018)	29409054	bmi	cross-sectional	prevalent cases	Community-based	674
Peters BA. et al. (2018)	29950689	bmi	cross-sectional	prevalent cases	Clinical	599
Pushpanathan P. et al. (2016)	27366720	type 2 diabetes, hba1c	case-control	prevalent cases	Unclear	30
Qi CJ. et al. (2016)	27231166	type 1 diabetes, hba1c	case-control	incident cases	Clinical	30

Rampelli S. et al. (2018)	30534614	weight gain	longitudinal cohort	proper ordering	Community-based	70
Riva A. et al. (2017)	27450202	bmi	case-control	prevalent cases	Unclear	78
Salamon D. et al. (2018)	29657308	type 2 diabetes, type 1 diabetes, hba1c, lipids	case-control	prevalent cases	Unclear	68
Sanchez-Alcoholado L. et al. (2017)	29051757	type 2 diabetes	case-control	prevalent cases	Unclear	32
Stanislawski MA. et al. (2018)	30352933	bmi, weight gain	longitudinal cohort	proper ordering	Unclear	165
Stanislawski MA. et al. (2017)	28870230	weight gain	longitudinal cohort	proper ordering	Clinical	169
Sun S. et al. (2019)	30905192	hypertension, blood pressure	cross-sectional	prevalent cases	Community-based	529
Tun HM. et al. (2018)	29459942	bmi	longitudinal cohort	proper ordering	Clinical	935
Tun MH. et al. (2018)	30224442	bmi	longitudinal cohort	proper ordering	Clinical	757
Turnbaugh PJ. et al. (2009)	19043404	bmi	unclear	incident cases	Unclear	100
Villanueva-Millán MJ. et al. (2019)	30924020	metabolic syndrome	cross-sectional	incident cases	Clinical	51
Wang Y. et al. (2017)	28328990	type 2 diabetes	case-control	prevalent cases	Unclear	40
Yamashita M. et al. (2019)	30901505	insulin, glucose	cross-sectional	prevalent cases	Clinical	28
Yang Q. et al. (2018)	29800124	bmi, adiposity, insulin, lipids, type 2 diabetes	case-control	incident cases	Community-based	5,933
Yun Y. et al. (2017)	28676106	bmi	cross-sectional	prevalent cases	Volunteer	1,463
Zacarías MF. et al. (2018)	30005082	bmi, weight gain	longitudinal cohort	proper ordering	Volunteer	54
Zhang X. et al. (2013)	24013136	bmi, glucose, insulin, lipids, type 2 diabetes	case-control	incident cases	Unclear	121
Zupancic ML. et al. (2012)	22905200	bmi, metabolic syndrome	cross-sectional	prevalent cases	Community-based	310

## Supplemental Table 1