Supplementary file 3 Basic characteristics of articles included on the association of obesity in relation to UFs risk

Author (ref.), year	**Country**	**Study design**	**Study period**	**Study population**	**Age of Participants, years**	**NO. of participants (case, %)**	**Assessment methods of UFs**	**Assessment methods and categories of obesity**	***OR* (95% *CI*) for each category of obesity**	**Adjustment for covariates**	**Quality assessment**
Faerstein (12), 2001	United States	Case-Control	Between January 1990 and June 1993	White and African-American	Cases: 20-55 (42.3 ±6.4) Controls: 18-53, (39.8 ±6.0)	712 (318, 44.7%)	Histologic findings or uterine sonogram	BMI: 16.2-20.3, 20.4-22.3, 22.4-25.3, 25.4-48.8	BMI: 1.0 (ref), 1.3 (0.8-2.1), 1.3 (0.8-2.1), 2.3 (1.4-3.8)	Age, clinic, and ethnicity	8
Terry (13), 2007	United States	Cohort	1989-2001	White and African American	25-42	116609 (8446, 7.2%)	Ultrasound or hysterectomy	BMI: <20, 20-21.9, 22-23.9, 24-24.9, 25-26.9, 27-29.9, ≥30 Weight change since age 18(kg): lost ≥5, lost 3-4.9, stable, gained 3-4.9, gained 5-9.9, gained 10-14.9, gained 15-19.9, gained ≥20 Waist-to-hip ratio: <0.70, 0.70-0.79, 0.80-0.89, >0.89	BMI: 0.94 (0.86-1.03), 1.00 (ref),1.01 (0.94-1.08), 1.10 (1.00-1.20), 1.07 (0.99-1.17), 1.17 (1.08-1.27), 1.14 (1.05-1.22) Weight change since age 18 (kg): 1.10 (0.96-1.26), 0.97 (0.82-1.14), 1.00 (ref), 1.15 (1.05-1.26), 1.14 (1.05-1.23), 1.25 (1.15-1.35), 1.25 (1.14-1.37), 1.31 (1.22-1.42) Waist-to-hip ratio: 0.95 (0.85-1.05), 1.00 (ref), 1.13 (1.02-1.25), 1.06 (0.96-1.18)	Age, age at menarche, infertility, married, ancestry, parity and age at first birth, time since last birth, age at first oral contraceptive use, smoking status, diastolic blood pressure	8
Sarkodie (14), 2016	Ghana	Cross-sectional	November 2011 to February 2012	Ghanaian	14-54 (31.9 ±7.9)	244 (90, 36.9%)	Ultrasound	BMI: <25, 25-29.9, ≥30	BMI: 1.00 (ref), 1.316 (0.635-2.727), 3.535 (1.813- 6.895)	NA	5
He (15), 2013	China	Case-Control	From October 2009 to April 2011	Chinese	>18	164 (32, 19.5%)	Ultrasound diagnosis or hysterectomy surgery	BMI: <18.5, 18.5-23.9, 24.0-27.9, ≥28	BMI: 1.2 (1.0,1.4)	Age, gravidity and parity	5
Martin (16), 2011	United States	Cross-sectional	2003-2004	Non-Hispanic white, non-Hispanic black, Mexican American/Hispanic	20-49	887 (68, 7.7%)	Self-reported	BMI:<18.5,18.5-24.9, 25-29.9, ≥30	BMI: 1.12 (0.12-10.77), 1.00 (ref), 1.35 (0.54-3.42), 2.31 (1.15-4.62)	NA	5
Takeda (17), 2008	Japan	Case-control	Between 1997 and 2005	Japanese	40- 49 (median 45)	372 (213, 57.3%)	Histologically confirmed	BMI:<24, ≥24	BMI: 2.20 (1.25-3.86)	NA	6

Tak (18), 2016	Korea	Case-control	Between March 2012 and February 2014	Korean	40-47 (median 44)	1230 (615, 50.0%)	Ultrasonography	Central obesity: waist circumference ≥85cm	Waist circumference (cm): 1.14 (0.93-1.41)	Age, age at first birth, menarche age, parity, use of oral contraceptives or intrauterine devices, and health-related habits	8
Lumbiganon (19), 1996	Thailand	Case-control	From January 1991 to June 1993	Thai	<60	3619 (910, 25.1%)	Surgery and pathologically proven diagnosis	BMI: ≤24, 25-29, ≥30	BMI: 1.06 (1.04-1.08)	Depot-medroxyprogesterone acetate, oral contraceptives, tubal ligation, family history of uterine leiomyomas, parity, education, smoking, abortions	7
Wise (20), 2005	United States	Cohort	From 1997 through 2001	Black	21-69	21506 (2146, 10.0%)	Ultrasound and/or hysterectomy	BMI: <20, 20.0-22.4, 22.5-24.9, 25.0-27.4, 27.5-29.9, 30.0-32.4, >32.5 Weight gain since age 18 (kg): <5, 5-9, 10-14, 15-24, >25 Waist-to-hip ratio: <0.71, 0.71-0.75, 0.76-0.79, 0.80-0.85, >0.86 Waist circumference (inch): <27, 27-29, 30-32, 33-35, ≥36	BMI: 1.00 (ref),1.34 (1.02-1.75), 1.39 (1.07-1.81), 1.45 (1.12-1.89), 1.47 (1.11-1.93), 1.36 (1.02-1.80), and 1.21 (0.93-1.58) Weight gain since age 18 (kg): 1.0 (ref),1.10 (0.93-1.30), 1.13 (0.97-1.33), 1.18 (1.01-1.36), 1.10 (0.95-1.29) Waist-to-hip ratio: 1.0 (ref), 1.07 (0.92-1.25), 1.11 (0.95-1.30), 1.12 (0.95-1.31), 0.98 (0.83-1.16) Waist circumference (inch): 1.00 (ref), 1.08 (0.92-1.28), 1.01 (0.84-1.21), 1.16 (0.94-1.43), 0.97 (0.77-1.21)	Age, time period, age at menarche, parity, age at first birth, years since last birth, ever use of oral contraceptives, education, living in the West, current alcohol consumption, and smoking. Models of waist-to-hip ratio measures are further adjusted for BMI	8
Parazzini (21), 2006	Italy	Cross-sectional	Between 1997 and 2003	Italian	Mean 53	85967 (2239, 2.6%)	Clinical diagnosis or ultrasonographic diagnosis	BMI: ≤22, 22-26, ≥26	BMI for clinical diagnosis: 1.00 (ref), 1.07 (0.90-1.27), 1.30 (1.09-1.55) BMI for ultrasonographic diagnosis: 1.00 (ref), 1.06 (0.87-1.30), 1.29 (1.01-1.45)	Age, calendar period at interview, geographic area, level of education, marital status, smoking habits, menopausal status, parity, miscarriage and oral contraceptive use.	7
Yang (22), 2014	China	Case-control	From 2009 to 2012	Chinese	35-55	826 (316, 38.3%)	Ultrasound or hysterectomy	BMI: ≤21.3, >21.3-23.0, >23.0-24.4, >24.4-26.5, >26.5 waist-to-hip ratio: ≤0.79, >0.79-0.83, >0.83-0.86, >0.86-0.90, > 0.90 Waist circumference(cm): ≤74.0, >74.0-79.0, >79.0-83.2, >83.2-90.0, >90.0	BMI: 1.00 (ref), 1.44 (0.90-2.33), 1.76 (1.09-2.82), 1.78 (1.11-2.85), 1.76 (1.08-2.86) waist-to-hip ratio: 1.0 (ref), 1.03 (0.63-1.67), 1.45 (0.90-2.35), 1.43 (0.89-2.30), 1.32 (0.80-2.17)	Age, parity, age at menarche, and age at last birth	7

									Waist circumference (cm): 1.00 (ref), 1.16 (0.72-1.85), 1.46 (0.91-2.35), 1.63 (1.03-2.59), 1.55 (0.95-2.53)		
Templeman (23), 2009	United States	Cohort	1995-2006	Californian	25-84	80204 (1790, 2.2%)	Surgically confirmed	BMI:<18.50, 18.50-24.99, 25.00-29.99, ≥30.00 Change in weight since age 18 years (kg): same weight or weight loss, weight gain <10.00, weight gain 10.00-19.99, weight gain >20.00	BMI: 1.00 (0.74-1.35), 1.0 (ref), 1.23 (1.10-1.38), 1.27 (1.11-1.46) Change in weight since age 18 years (kg): 0.87 (0.76-1.01), 1.0 (ref), 1.16 (1.02-1.31), 1.23 (1.08-1.41)	BMI: menopausal hormone status, age at first full-term pregnancy, race/ethnicity, mother or sister had fibroids, daily alcohol intake, ever had difficulty becoming pregnant, cigarette smoker, diabetes, high blood pressure, ever had tubal ligation, age at menarche and stratified by age Change in weight since age 18 years (kg): race/ethnicity, family history of fibroids, stratified by age, BMI at age 18 years	8
Chen (24), 2001	United States	Case-control	During 1978-1979 and 1985-1987	White and African-American	17-44	White: 1234 (246, 19.9%) African-American: 350 (70, 20%)	Surgical report, self-report	BMI: normal,<27.3; obese:≥27.3	White: 1.0 (ref), 1.1 (0.7-1.6) African-American: 1.0 (ref), 1.0 (0.5-2.0)	Age at sterilization, number of living children, and cigarette smoking	8
Baird (25),2007	United States	Cross-sectional	1996-1999	White and African-American	35-49	White: 455 (207, 45.5%) African-American: 734 (166, 22.6%)	Ultrasound, surgical report, self-report	BMI: <25, 25-29.99, 30-34.99, ≥35	African-American: 1.00 (ref), 1.36 (0.86-2.17), 1.60 (0.94-2.71), 1.56 (0.94-2.59); White: 1.00 (ref), 0.95 (0.59- 1.53), 1.07 (0.53-2.15), 0.94 (0.45-1.98)	Age, age at menarche, parity after age 24 years, physical activity	8

Sato (26), 1998	Japan	Case-Control	From September 1994 to October 1995	Japanese	29-54 (median 45)	300 (100, 33.3%)	Pathologically diagnosed	BMI: <20.0, 20.0-24.0, <24.0-26.4 Waist-to-hip ratio: <0.75,0.75-0.80,0.80-0.85, ≥0.85	BMI: 1.00 (ref), 0.97 (0.45-2.08), 0.99 (0.38-2.57) Waist-to-hip ratio: 1.00 (ref), 3.21 (1.59-6.51), 10.02 (4.57-21.98), 12.80 (4.50-36.37)	NA	7
Lee (27), 2018	Korea	Cohort	Began in July 2013	Korean	20-45 (median 35.5)	5062 (210, 4.1%)	Physician or myomectomy	BMI:<18.5,18.5-<23, 23-<25, 25-<27.5, ≥27.5 Weight change since age 18 (kg): Lost ≥2, stable, gained 2-<5, Gained 5-<10, gained ≥10	BMI: 0.62 (0.32-1.20), 1.00 (ref), 1.03 (0.71-1.50), 1.23 (0.77-1.99), 1.22 (0.63-2.36) Weight change since age 18 (kg): 1.21 (0.70-2.07), 1.00 (ref), 1.55 (1.01-2.38), 1.84 (1.22-2.76), 2.00 (1.25-3.20)	Age, alcohol, education, number of pregnancy	7
Haan (28), 2018	Suriname	Cross-sectional	Between February 2013 and July 2015	African, Asian, or other races	Fibroids: 51.1 ±9.1; no fibroids: 41.6 ±13.6	728 (104, 14.3%)	Self-reported	Obesity: BMI≥27.5 for Asians, ≥30.0 for other ancestries	BMI: 1.10 (0.68-1.75)	Age, African ancestry, use of hormonal contraceptives, parity, postmenopausal status, fasting plasma total cholesterol (except for hypercholesterolemia model), fasting plasma glucose(except for diabetes model), and systolic blood pressure (except for hypertension model).	7
Ciavattini (29), 2017	Italy	Case-Control	From January 2014 to December 2014	Italian	16-39	216 (71, 32.9%)	Ultrasound	BMI: continuous variable	BMI: 0.97 (0.90-1.04)	NA	6
Samadi (30), 1996	United States	Case-Control	Between 1978 and 1982	African American and other races	20-54	1698 (200, 11.8%)	Self-reported	BMI: lean or heavy dichotomized at the median value	BMI: 1.0 (ref), 1.0 (0.7-1.5)	Menopausal status, frequency of pap smears, age at menarche, education, breast-feeding, race, smoking, and oral contraceptive use.	8
Parazzini (31), 2004	Italy	Case-control	1986-1997	Italian	21-54 (median 43)	2400 (843，35.1%)	Histologically confirmed	Severe overweight: BMI ≥30	BMI: 0.6 (0.5-0.8)	Age, education, smoking, parity and calendar year at interview	8

Sun (32), 2019	China	Case-control	From April 2016 to April 2018	Chinese	Cases: 18-65 (44.22±7.19) Controls: quartile, 32.00-50.50 (median 44.00)	170 (89, 52.4%)	Medical history, clinical manifestations, gynecological physical examination, ultrasound examination and postoperative pathology	BMI: <22.08, 22.08-24.15, 24.16‑26.73, >26.73 Waist-to-hip ratio: <0.84, 0.84‑0.87, 0.88‑0.92, >0.92 Waist circumference (cm): <77.25 77.25‑82.09, 82.10‑89.93, >89.93	BMI: 1.00 (ref), 1.499 (0.606-3.707), 2.564 (1.006-6.533), 5.167 (1.904-14.023) Waist-to-hip ratio: 1.00 (ref), 3.993 (1.434, 11.119), 7.494 (2.755, 20.390), 20.357 (6.275, 66.045) Waist circumference (cm): 1.00 (ref), 2.273 (0.887, 5.821), 4.877 (1.843, 12.911), 9.344 (3.185, 27.411)	Age	6
Sharami (33), 2019	Iran	Case-control	From March 2018 to March 2019	Iranian	Cases: 42.62 ± 6.22 Controls: 38.00 ± 8.02	212 (104, 49.1%)	Abdominal or transvaginal sonography	BMI: <25, 25–30, 30-35, >35	BMI: 1.00 (ref), 1.839 (0.898-3.770), 1.368 (0.625- 2.998), 1.665 (0.611-4.535)	NA	6

Ref.: reference; OR: odds ratio; CI: confidence interval; BMI: body mass index; NA: not available; UFs: uterine fibroids.