

Table S1. ICD-9-CM diagnostic codes for diseases.

Variable	Code
Diabetes mellitus	250.xx
Hypertension	401.xx-405.xx
Heart failure	428.xx
Coronary artery disease	410.xx-414.xx
Myocardial infarction	410.xx, 412.xx
Peripheral arterial disease	440.0x, 440.2x, 440.3x, 440.8x, 440.9x, 443x, 444.0x, 444.22, 444.8x, 447.8x, 447.9x
Stroke	430.xx-437.xx
Chronic obstructive pulmonary disease	491.xx, 492.xx, 496.xx
Liver cirrhosis	571.2, 571.5, 571.6
Malignancy	140.xx-208.xx (Catastrophic illness card)
Dialysis	585.xx (Catastrophic illness card)

Abbreviations: ICD-9-CM, International Classification of Diseases, Ninth Revision, Clinical Modification.

Table S2. ICD-9-CM procedure codes and Taiwan NHI reimbursement codes for surgeries.

Variable	Code
Valve surgery	ICD: 3511, 3512, 3514, 3521, 3522, 3523, 3524, 3527, 3528 NHI: 68015.x-68018.x
CABG	ICD: 3611, 3612, 3613, 3614 NHI: 68023.x-68025.x
Previous cardiac surgery	NHI: 68023.x, 68024.x, 68025.x, 68015.x, 68016.x, 68017.x, 68018.x, 69024.x, 69035.x, 69036.x, 69037.x
Type of CABG (On pump/ Off pump)	NHI: 68036.x, 68052B, 47056.x
Aortic valve repair or replacement	ICD: 3511, 3521, 3522
Mitral valve repair	ICD: 3512
Mitral valve replacement	ICD: 3523, 3524
Tricuspid repair	ICD: 3514
Tricuspid replacement	ICD: 3527, 3528
Concomitant maze	ICD: 3733

Abbreviations: ICD-9-CM, International Classification of Diseases, Ninth Revision, Clinical Modification; NHI, National Health Insurance; CABG, coronary artery bypass graft.

Table S3. Detailed demographics, clinical and surgical characteristics, and outcomes of the female and male patients who underwent major cardiac surgeries.

Variable	Before matching			After matching		
	Female (<i>n</i> = 20,078)	Male (<i>n</i> = 46,248)	STD	Female (<i>n</i> = 18,720)	Male (<i>n</i> = 18,720)	STD
Age (years)	64.4 ± 12.8	63.2 ± 12.3	0.09	64.4 ± 12.8	64.1 ± 12.8	0.02
Monthly income, US dollar						
0–596	7,620 (38.0)	18,719 (40.5)	-0.05	7,218 (38.6)	7,233 (38.6)	<0.01
610–760	7,339 (36.6)	13,140 (28.4)	0.17	6,671 (35.6)	6,592 (35.2)	0.01
> 800	5,119 (25.5)	14,389 (31.1)	-0.12	4,831 (25.8)	4,895 (26.1)	-0.01
Urbanization level						
Low	3,148 (15.7)	5,993 (13.0)	0.08	2,865 (15.3)	2,832 (15.1)	<0.01
Moderate	5,652 (28.2)	12,653 (27.4)	0.02	5,333 (28.5)	5,243 (28.0)	0.01
High	6,156 (30.7)	14,620 (31.6)	-0.02	5,772 (30.8)	5,921 (31.6)	-0.02
Very High	5,122 (25.5)	12,982 (28.1)	-0.06	4,750 (25.4)	4,724 (25.2)	<0.01
Previous cardiac surgery	290 (1.4)	515 (1.1)	0.03	251 (1.3)	271 (1.4)	-0.01
Urgent surgery	2,046 (10.2)	5,701 (12.3)	-0.07	1,994 (10.7)	1,995 (10.7)	<0.01
Comorbid conditions						
Diabetes mellitus	8,761 (43.6)	17,887 (38.7)	0.10	8,389 (44.8)	8,351 (44.6)	<0.01
Hypertension	12,102 (60.3)	28,883 (62.5)	-0.04	11,619 (62.1)	11,501 (61.4)	0.01
Heart failure	6,071 (30.2)	10,226 (22.1)	0.19	5,390 (28.8)	5,455 (29.1)	-0.01
Coronary arterial disease	13,632 (67.9)	38,438 (83.1)	-0.36	13,200 (70.5)	13,128 (70.1)	0.01
Prior myocardial infarction	2,732 (13.6)	9,447 (20.4)	-0.18	2,699 (14.4)	2,656 (14.2)	0.01
Peripheral arterial disease	981 (4.9)	2,204 (4.8)	0.01	919 (4.9)	932 (5.0)	<0.01
Prior stroke	2,894 (14.4)	6,227 (13.5)	0.03	2,693 (14.4)	2,714 (14.5)	<0.01

Variable	Before matching			After matching		
	Female (<i>n</i> = 20,078)	Male (<i>n</i> = 46,248)	STD	Female (<i>n</i> = 18,720)	Male (<i>n</i> = 18,720)	STD
Chronic obstructive pulmonary disease	1,096 (5.5)	4,614 (10.0)	-0.17	1,068 (5.7)	1,102 (5.9)	-0.01
Liver cirrhosis	297 (1.5)	910 (2.0)	-0.04	274 (1.5)	307 (1.6)	-0.01
Malignancy	796 (4.0)	1,571 (3.4)	0.03	722 (3.9)	683 (3.6)	0.01
Charlson's Comorbidity Index score	2.6 ± 2.3	2.3 ± 2.2	0.09	2.6 ± 2.3	2.6 ± 2.3	<0.01
Hospital level						
Medical center (teaching hospital)	14,333 (71.4)	33,482 (72.4)	-0.02	13,405 (71.6)	13,432 (71.8)	<0.01
Regional / district hospital	5,745 (28.6)	12,766 (27.6)	0.02	5,315 (28.4)	5,288 (28.2)	<0.01
Cumulative volume of valve or CABG surgery between 2000 and 2013						
1st quartile (1-1289)	5,053 (25.2)	11,069 (23.9)	0.03	4,704 (25.1)	4,680 (25.0)	<0.01
2nd quartile (1675-3462)	5,469 (27.2)	12,840 (27.8)	-0.01	5,110 (27.3)	5,205 (27.8)	-0.01
3rd quartile (4453-5162)	4,222 (21.0)	11,038 (23.9)	-0.07	4,007 (21.4)	4,028 (21.5)	<0.01
4th quartile (6158-8056)	5,334 (26.6)	11,301 (24.4)	0.05	4,899 (26.2)	4,807 (25.7)	0.01
Surgical type						
Isolated CABG	9,849 (49.1)	32,303 (69.8)	-0.43	9,818 (52.4)	9,818 (52.4)	0
Isolated valve	8,573 (42.7)	10,487 (22.7)	0.44	7,374 (39.4)	7,374 (39.4)	0
CABG + valve	1,656 (8.2)	3,458 (7.5)	0.03	1,528 (8.2)	1,528 (8.2)	0
CABG details (<i>n</i> = 47,266)						
Number of bypassed vessels						
1	999 (8.7)	1,894 (5.3)	0.13	952 (8.4)	683 (6.0)	0.09
2	2,264 (19.7)	6,077 (17.0)	0.07	2,224 (19.6)	1,987 (17.5)	0.05
3	6,692 (58.2)	22,392 (62.6)	-0.09	6,635 (58.5)	6,945 (61.2)	-0.06

Variable	Before matching			After matching		
	Female (<i>n</i> = 20,078)	Male (<i>n</i> = 46,248)	STD	Female (<i>n</i> = 18,720)	Male (<i>n</i> = 18,720)	STD
4 or more	1,550 (13.5)	5,398 (15.1)	-0.05	1,535 (13.5)	1,731 (15.3)	-0.05
Number of bypassed vessels	2.8 ± 0.8	2.9 ± 0.7	-0.15	2.8 ± 0.8	2.9 ± 0.7	-0.11
Type of CABG						
On pump	9,468 (82.3)	29,181 (81.6)	0.02	9,333 (82.3)	9,333 (82.3)	<0.01
Off pump	2,037 (17.7)	6,580 (18.4)	-0.02	2,013 (17.7)	2,013 (17.7)	<0.01
Valve surgery details (<i>n</i> = 24,174)						
Number of involved valves						
1	5,907 (57.7)	9,132 (65.5)	-0.16	5,484 (61.6)	5,484 (61.6)	<0.01
2	3,645 (35.6)	4,066 (29.2)	0.14	2,905 (32.6)	2,905 (32.6)	<0.01
3	677 (6.6)	747 (5.4)	0.05	513 (5.8)	513 (5.8)	<0.01
Number of intervened valves	1.5 ± 0.6	1.4 ± 0.6	0.15	1.4 ± 0.6	1.4 ± 0.6	<0.01
Type of valve surgery						
Aortic valve repair or replacement	4,085 (39.9)	7,011 (50.3)	-0.21	3,897 (43.8)	3,897 (43.8)	<0.01
Mitral valve repair	3,173 (31.0)	3,881 (27.8)	0.07	2,612 (29.3)	2,612 (29.3)	<0.01
Mitral valve replacement	5,634 (55.1)	5,857 (42.0)	0.26	4,504 (50.6)	4,504 (50.6)	<0.01
Tricuspid repair	1,295 (12.7)	1,256 (9.0)	0.12	953 (10.7)	953 (10.7)	<0.01
Tricuspid replacement	330 (3.2)	395 (2.8)	0.02	232 (2.6)	232 (2.6)	<0.01
Concomitant maze	1,349 (6.7)	1,336 (2.9)	0.18	969 (5.2)	1,028 (5.5)	-0.01
Follow up year	4.8 ± 4.0	5.1 ± 3.9	-0.06	4.9 ± 4.0	4.8 ± 3.9	0.01
In-hospital outcome						
In-hospital mortality	1,706 (8.5)	3,231 (7.0)	0.06	1,587 (8.5)	1,419 (7.6)	0.03
New onset stroke	638 (3.2)	1,360 (2.9)	0.01	590 (3.2)	618 (3.3)	-0.01

Variable	Before matching			After matching		
	Female (n = 20,078)	Male (n = 46,248)	STD	Female (n = 18,720)	Male (n = 18,720)	STD
New onset dialysis	1,744 (8.7)	3,396 (7.3)	0.05	1,613 (8.6)	1,575 (8.4)	0.01
Late outcome						
All-cause mortality	7,779 (38.7)	17,073 (36.9)	0.04	7,278 (38.9)	7,511 (40.1)	-0.03
MACE*	5,617 (28.0)	13,542 (29.3)	-0.03	5,329 (28.5)	5,413 (28.9)	-0.01
All-cause readmission	12,870 (64.1)	29,729 (64.3)	<0.01	12,055 (64.4)	12,064 (64.4)	<0.01

STD, standardized difference; CABG, coronary artery bypass graft; MACE, major adverse cardiovascular events;

Values are given as number (%) or mean \pm standard deviation;

* Including anyone of cardiovascular death, revascularization, acute myocardial infraction or ischemic stroke.

Table S4. Demographics, clinical and surgical characteristics, and outcomes of women and men who underwent CABG surgery alone.

Variable	Before matching			After matching		
	Female (<i>n</i> = 9,849)	Male (<i>n</i> = 32,303)	STD	Female (<i>n</i> = 9,818)	Male (<i>n</i> = 9,818)	STD
Age (years)	67.6 ± 9.6	64.6 ± 10.8	0.29	67.6 ± 9.5	67.5 ± 9.9	0.01
Monthly income, US dollar						
0–596	4,018 (40.8)	13,544 (41.9)	-0.02	4,013 (40.9)	4,110 (41.9)	-0.02
610–760	3,574 (36.3)	8,674 (26.9)	0.20	3,548 (36.1)	3,428 (34.9)	0.03
> 800	2,257 (22.9)	10,085 (31.2)	-0.19	2,257 (23.0)	2,280 (23.2)	-0.01
Urbanization level						
Low	1,523 (15.5)	3,969 (12.3)	0.09	1,507 (15.3)	1,421 (14.5)	0.02
Moderate	2,782 (28.2)	8,498 (26.3)	0.04	2,770 (28.2)	2,736 (27.9)	0.01
High	3,065 (31.1)	10,347 (32.0)	-0.02	3,062 (31.2)	3,166 (32.2)	-0.02
Very High	2,479 (25.2)	9,489 (29.4)	-0.09	2,479 (25.2)	2,495 (25.4)	<0.01
Previous cardiac surgery	43 (0.4)	195 (0.6)	-0.02	43 (0.4)	36 (0.4)	0.01
Urgent surgery	1,453 (14.8)	4,628 (14.3)	0.01	1,447 (14.7)	1,446 (14.7)	<0.01
Comorbid conditions						
Diabetes mellitus	6,470 (65.7)	15,077 (46.7)	0.39	6,439 (65.6)	6,461 (65.8)	<0.01
Hypertension	7,777 (79.0)	22,613 (70.0)	0.21	7,746 (78.9)	7,763 (79.1)	<0.01
Heart failure	2,193 (22.3)	5,144 (15.9)	0.16	2,170 (22.1)	2,146 (21.9)	0.01
Coronary arterial disease	9,820 (99.7)	32,242 (99.8)	-0.02	9,791 (99.7)	9,788 (99.7)	0.01
Prior myocardial infarction	2,219 (22.5)	8,344 (25.8)	-0.08	2,217 (22.6)	2,201 (22.4)	<0.01
Peripheral arterial disease	666 (6.8)	1,787 (5.5)	0.05	664 (6.8)	674 (6.9)	<0.01
Prior stroke	1,769 (18.0)	4,765 (14.8)	0.09	1,763 (18.0)	1,769 (18.0)	<0.01
Chronic obstructive pulmonary disease	494 (5.0)	2,990 (9.3)	-0.17	494 (5.0)	521 (5.3)	-0.01

Variable	Before matching			After matching		
	Female (n = 9,849)	Male (n = 32,303)	STD	Female (n = 9,818)	Male (n = 9,818)	STD
Liver cirrhosis	90 (0.9)	412 (1.3)	-0.03	90 (0.9)	112 (1.1)	-0.02
Malignancy	364 (3.7)	1,046 (3.2)	0.03	364 (3.7)	353 (3.6)	0.01
Charlson's Comorbidity Index score	3.1 ± 2.5	2.5 ± 2.2	0.25	3.1 ± 2.5	3.1 ± 2.5	-0.01
Hospital level						
Medical center (teaching hospital)	6,809 (69.1)	23,011 (71.2)	-0.05	6,794 (69.2)	6,841 (69.7)	-0.01
Regional / district hospital	3,040 (30.9)	9,292 (28.8)	0.05	3,024 (30.8)	2,977 (30.3)	0.01
Cumulative volume of valve or CABG surgery between 2000 and 2013						
1st quartile (1-1289)	2,873 (29.2)	8,217 (25.4)	0.08	2,854 (29.1)	2,776 (28.3)	0.02
2nd quartile (1675-3462)	2,973 (30.2)	9,436 (29.2)	0.02	2,967 (30.2)	2,972 (30.3)	<0.01
3rd quartile (4453-5162)	1,803 (18.3)	7,244 (22.4)	-0.10	1,801 (18.3)	1,817 (18.5)	<0.01
4th quartile (6158-8056)	2,200 (22.3)	7,406 (22.9)	-0.01	2,196 (22.4)	2,253 (22.9)	-0.01
CABG details						
Number of bypassed vessels						
1	453 (4.6)	980 (3.0)	0.08	451 (4.6)	287 (2.9)	0.09
2	1,775 (18.0)	5,016 (15.5)	0.07	1,767 (18.0)	1,520 (15.5)	0.07
3	6,173 (62.7)	21,200 (65.6)	-0.06	6,157 (62.7)	6,418 (65.4)	-0.06
4 or more	1,448 (14.7)	5,107 (15.8)	-0.03	1,443 (14.7)	1,593 (16.2)	-0.04
Number of bypassed vessels	2.87 ± 0.70	2.94 ± 0.66	-0.10	2.88 ± 0.70	2.95 ± 0.66	-0.11
Type of CABG						
On pump	7,841 (79.6)	25,781 (79.8)	<0.01	7,817 (79.6)	7,817 (79.6)	<0.01
Off pump	2,008 (20.4)	6,522 (20.2)	<0.01	2,001 (20.4)	2,001 (20.4)	<0.01

Variable	Before matching			After matching		
	Female (n = 9,849)	Male (n = 32,303)	STD	Female (n = 9,818)	Male (n = 9,818)	STD
Concomitant maze	43 (0.4)	133 (0.4)	<0.01	42 (0.4)	41 (0.4)	<0.01
Follow up year	4.9 ± 3.9	5.2 ± 3.9	-0.08	4.9 ± 3.9	4.9 ± 3.9	<0.01
In-hospital outcome						
In-hospital mortality	862 (8.8)	2,111 (6.5)	0.08	853 (8.7)	770 (7.8)	0.03
New onset stroke	332 (3.4)	872 (2.7)	0.04	330 (3.4)	297 (3.0)	0.02
New onset dialysis	974 (9.9)	2,383 (7.4)	0.09	966 (9.8)	967 (9.8)	<0.01
Late outcome						
All-cause mortality	4,408 (44.8)	12,109 (37.5)	0.15	4,380 (44.6)	4,453 (45.4)	-0.01
MACE*	3,569 (36.2)	10,438 (32.3)	0.08	3,559 (36.2)	3,446 (35.1)	0.02
All-cause readmission	6,923 (70.3)	21,540 (66.7)	0.08	6,907 (70.4)	6,823 (69.5)	0.02

STD, standardized difference; CABG, coronary artery bypass graft; MACE, major adverse cardiovascular events;

Values are given as number (%) or mean ± standard deviation;

* Including anyone of cardiovascular death, revascularization, acute myocardial infraction or ischemic stroke.

Table S5. Demographics, clinical and surgical characteristics, and outcomes of women and men who underwent valve surgery alone.

Variable	Before matching			After matching		
	Female (<i>n</i> = 8,573)	Male (<i>n</i> = 10,487)	STD	Female (<i>n</i> = 7,374)	Male (<i>n</i> = 7,374)	STD
Age (years)	59.8 ± 14.7	58.1 ± 15.1	0.12	59.3 ± 15.0	58.6 ± 14.6	0.04
Monthly income, US dollar						
0–596	2,964 (34.6)	3,739 (35.7)	-0.02	2,597 (35.2)	2,532 (34.3)	0.02
610–760	3,128 (36.5)	3,379 (32.2)	0.09	2,558 (34.7)	2,581 (35.0)	-0.01
> 800	2,481 (28.9)	3,369 (32.1)	-0.07	2,219 (30.1)	2,261 (30.7)	-0.01
Urbanization level						
Low	1,357 (15.8)	1,611 (15.4)	0.01	1,131 (15.3)	1,169 (15.9)	-0.01
Moderate	2,399 (28.0)	3,184 (30.4)	-0.05	2,125 (28.8)	2,070 (28.1)	0.02
High	2,616 (30.5)	3,211 (30.6)	<0.01	2,259 (30.6)	2,313 (31.4)	-0.02
Very High	2,201 (25.7)	2,481 (23.7)	0.05	1,859 (25.2)	1,822 (24.7)	0.01
Previous cardiac surgery	231 (2.7)	272 (2.6)	0.01	193 (2.6)	222 (3.0)	-0.02
Urgent surgery	430 (5.0)	668 (6.4)	-0.06	397 (5.4)	402 (5.5)	<0.01
Comorbid conditions						
Diabetes mellitus	1,526 (17.8)	1,655 (15.8)	0.05	1,272 (17.2)	1,206 (16.4)	0.02
Hypertension	3,203 (37.4)	4,177 (39.8)	-0.05	2,848 (38.6)	2,713 (36.8)	0.04
Heart failure	3,191 (37.2)	3,791 (36.1)	0.02	2,613 (35.4)	2,713 (36.8)	-0.03
Coronary arterial disease	2,276 (26.5)	3,002 (28.6)	-0.05	1,993 (27.0)	1,921 (26.1)	0.02
Prior myocardial infarction	247 (2.9)	414 (3.9)	-0.06	231 (3.1)	213 (2.9)	0.01
Peripheral arterial disease	208 (2.4)	236 (2.3)	0.01	160 (2.2)	171 (2.3)	-0.01
Prior stroke	865 (10.1)	982 (9.4)	0.02	698 (9.5)	711 (9.6)	-0.01
Chronic obstructive pulmonary disease	479 (5.6)	1,175 (11.2)	-0.20	457 (6.2)	458 (6.2)	<0.01

Variable	Before matching			After matching		
	Female (n = 8,573)	Male (n = 10,487)	STD	Female (n = 7,374)	Male (n = 7,374)	STD
Liver cirrhosis	182 (2.1)	419 (4.0)	-0.11	161 (2.2)	178 (2.4)	-0.02
Malignancy	355 (4.1)	354 (3.4)	0.04	286 (3.9)	257 (3.5)	0.02
Charlson's Comorbidity Index score	1.9 ± 1.9	1.9 ± 1.9	<0.01	1.8 ± 1.9	1.8 ± 1.8	<0.01
Hospital level						
Medical center (teaching hospital)	6,398 (74.6)	7,992 (76.2)	-0.04	5,568 (75.5)	5,547 (75.2)	0.01
Regional / district hospital	2,175 (25.4)	2,495 (23.8)	0.04	1,806 (24.5)	1,827 (24.8)	-0.01
Cumulative volume of valve or CABG surgery between 2000 and 2013						
1st quartile (1-1289)	1,846 (21.5)	2,297 (21.9)	-0.01	1,556 (21.1)	1,622 (22.0)	-0.02
2nd quartile (1675-3462)	2,085 (24.3)	2,496 (23.8)	0.01	1,756 (23.8)	1,843 (25.0)	-0.03
3rd quartile (4453-5162)	2,012 (23.5)	2,807 (26.8)	-0.08	1,824 (24.7)	1,823 (24.7)	<0.01
4th quartile (6158-8056)	2,630 (30.7)	2,887 (27.5)	0.07	2,238 (30.3)	2,086 (28.3)	0.05
Valve surgery details						
Number of involved valves						
1	4,638 (54.1)	6,432 (61.3)	-0.15	4,279 (58.0)	4,279 (58.0)	<0.01
2	3,294 (38.4)	3,371 (32.1)	0.13	2,600 (35.3)	2,600 (35.3)	<0.01
3	641 (7.5)	684 (6.5)	0.04	495 (6.7)	495 (6.7)	<0.01
Number of intervened valves	1.53 ± 0.63	1.45 ± 0.61	0.13	1.49 ± 0.62	1.49 ± 0.62	<0.01
Type of valve surgery						
Aortic valve repair or replacement	3,309 (38.6)	5,247 (50.0)	-0.23	3,157 (42.8)	3,157 (42.8)	<0.01
Mitral valve repair	2,744 (32.0)	3,008 (28.7)	0.07	2,235 (30.3)	2,235 (30.3)	<0.01
Mitral valve replacement	4,963 (57.9)	4,616 (44.0)	0.28	3,904 (52.9)	3,904 (52.9)	<0.01

Variable	Before matching			After matching		
	Female (<i>n</i> = 8,573)	Male (<i>n</i> = 10,487)	STD	Female (<i>n</i> = 7,374)	Male (<i>n</i> = 7,374)	STD
Tricuspid repair	1,215 (14.2)	1,107 (10.6)	0.11	900 (12.2)	900 (12.2)	<0.01
Tricuspid replacement	318 (3.7)	368 (3.5)	0.01	224 (3.0)	224 (3.0)	<0.01
Concomitant maze	1,231 (14.4)	1,073 (10.2)	0.13	858 (11.6)	925 (12.5)	-0.03
Follow up year	5.0 ± 4.0	5.0 ± 4.0	0.01	5.1 ± 4.0	5.0 ± 4.0	0.02
In-hospital outcome						
In-hospital mortality	582 (6.8)	649 (6.2)	0.02	500 (6.8)	422 (5.7)	0.04
New onset stroke	241 (2.8)	352 (3.4)	-0.03	203 (2.8)	254 (3.4)	-0.04
New onset dialysis	506 (5.9)	599 (5.7)	0.01	419 (5.7)	421 (5.7)	<0.01
Late outcome						
All-cause mortality	2,502 (29.2)	3,317 (31.6)	-0.05	2,112 (28.6)	2,299 (31.2)	-0.06
MACE*	1,603 (18.7)	2,114 (20.2)	-0.04	1,364 (18.5)	1,527 (20.7)	-0.06
All-cause readmission	4,945 (57.7)	6,079 (58.0)	-0.01	4,220 (57.2)	4,302 (58.3)	-0.02

STD, standardized difference; CABG, coronary artery bypass graft; MACE, major adverse cardiovascular events;

Values are given as number (%) or mean ± standard deviation;

* Including anyone of cardiovascular death, revascularization, acute myocardial infraction or ischemic stroke.

Table S6. Demographics, clinical and surgical characteristics, and outcomes of women and men who underwent CABG and valve surgery simultaneously.

Variable	Before matching			After matching		
	Female (<i>n</i> = 1,656)	Male (<i>n</i> = 3,458)	STD	Female (<i>n</i> = 1,528)	Male (<i>n</i> = 1,528)	STD
Age (years)	68.7 ± 11.0	66.3 ± 11.9	0.21	68.6 ± 10.9	68.1 ± 10.6	0.04
Monthly income, US dollar						
0–596	638 (38.5)	1,436 (41.5)	-0.06	608 (39.8)	591 (38.7)	0.02
610–760	637 (38.5)	1,087 (31.4)	0.15	565 (37.0)	583 (38.2)	-0.02
> 800	381 (23.0)	935 (27.0)	-0.09	355 (23.2)	354 (23.2)	<0.01
Urbanization level						
Low	268 (16.2)	413 (11.9)	0.12	227 (14.9)	242 (15.8)	-0.03
Moderate	471 (28.4)	971 (28.1)	0.01	438 (28.7)	437 (28.6)	<0.01
High	475 (28.7)	1,062 (30.7)	-0.04	451 (29.5)	442 (28.9)	0.01
Very High	442 (26.7)	1,012 (29.3)	-0.06	412 (27.0)	407 (26.6)	0.01
Previous cardiac surgery	16 (1.0)	48 (1.4)	-0.04	15 (1.0)	13 (0.9)	0.01
Urgent surgery	163 (9.8)	405 (11.7)	-0.06	150 (9.8)	147 (9.6)	0.01
Comorbid conditions						
Diabetes mellitus	765 (46.2)	1,155 (33.4)	0.26	678 (44.4)	684 (44.8)	-0.01
Hypertension	1,122 (67.8)	2,093 (60.5)	0.15	1,025 (67.1)	1,025 (67.1)	<0.01
Heart failure	687 (41.5)	1,291 (37.3)	0.09	607 (39.7)	596 (39.0)	0.01
Coronary arterial disease	1,536 (92.8)	3,194 (92.4)	0.01	1,416 (92.7)	1,419 (92.9)	-0.01
Prior myocardial infarction	266 (16.1)	689 (19.9)	-0.10	251 (16.4)	242 (15.8)	0.02
Peripheral arterial disease	107 (6.5)	181 (5.2)	0.05	95 (6.2)	87 (5.7)	0.02
Prior stroke	260 (15.7)	480 (13.9)	0.05	232 (15.2)	234 (15.3)	<0.01

Variable	Before matching			After matching		
	Female (n = 1,656)	Male (n = 3,458)	STD	Female (n = 1,528)	Male (n = 1,528)	STD
Chronic obstructive pulmonary disease	123 (7.4)	449 (13.0)	-0.18	117 (7.7)	123 (8.0)	-0.01
Liver cirrhosis	25 (1.5)	79 (2.3)	-0.06	23 (1.5)	17 (1.1)	0.03
Malignancy	77 (4.6)	171 (4.9)	-0.01	72 (4.7)	73 (4.8)	<0.01
Charlson's Comorbidity Index score	3.0 ± 2.4	2.7 ± 2.2	0.15	2.9 ± 2.3	2.9 ± 2.3	-0.02
Hospital level						
Medical center (teaching hospital)	1,126 (68.0)	2,479 (71.7)	-0.08	1,043 (68.3)	1,044 (68.3)	<0.01
Regional / district hospital	530 (32.0)	979 (28.3)	0.08	485 (31.7)	484 (31.7)	<0.01
Cumulative volume of valve or CABG surgery between 2000 and 2013						
1st quartile (1-1289)	334 (20.2)	555 (16.0)	0.11	294 (19.2)	282 (18.5)	0.02
2nd quartile (1675-3462)	411 (24.8)	908 (26.3)	-0.03	387 (25.3)	390 (25.5)	<0.01
3rd quartile (4453-5162)	407 (24.6)	987 (28.5)	-0.09	382 (25.0)	388 (25.4)	-0.01
4th quartile (6158-8056)	504 (30.4)	1,008 (29.1)	0.03	465 (30.4)	468 (30.6)	<0.01
CABG details						
Number of bypassed vessels						
1	546 (33.0)	914 (26.4)	0.14	501 (32.8)	396 (25.9)	0.15
2	489 (29.5)	1,061 (30.7)	-0.03	457 (29.9)	467 (30.6)	-0.01
3	519 (31.3)	1,192 (34.5)	-0.07	478 (31.3)	527 (34.5)	-0.07
4 or more	102 (6.2)	291 (8.4)	-0.09	92 (6.0)	138 (9.0)	-0.11
Number of bypassed vessels	2.11 ± 0.94	2.25 ± 0.94	-0.15	2.11 ± 0.93	2.27 ± 0.95	-0.17
Type of CABG						
On pump	1,627 (98.2)	3,400 (98.3)	-0.01	1,516 (99.2)	1,516 (99.2)	<0.01

Variable	Before matching			After matching		
	Female (n = 1,656)	Male (n = 3,458)	STD	Female (n = 1,528)	Male (n = 1,528)	STD
Off pump	29 (1.8)	58 (1.7)	0.01	12 (0.8)	12 (0.8)	<0.01
Valve surgery details						
Number of involved valves						
1	1,269 (76.6)	2,700 (78.1)	-0.03	1,205 (78.9)	1,205 (78.9)	<0.01
2	351 (21.2)	695 (20.1)	0.03	305 (20.0)	305 (20.0)	<0.01
3	36 (2.2)	63 (1.8)	0.03	18 (1.2)	18 (1.2)	<0.01
Number of intervened valves	1.26 ± 0.48	1.24 ± 0.47	0.04	1.22 ± 0.44	1.22 ± 0.44	<0.01
Type of valve surgery						
Aortic valve repair or replacement	776 (46.9)	1,764 (51.0)	-0.08	740 (48.4)	740 (48.4)	<0.01
Mitral valve repair	429 (25.9)	873 (25.2)	0.02	377 (24.7)	377 (24.7)	<0.01
Mitral valve replacement	671 (40.5)	1,241 (35.9)	0.10	600 (39.3)	600 (39.3)	<0.01
Tricuspid repair	80 (4.8)	149 (4.3)	0.03	53 (3.5)	53 (3.5)	<0.01
Tricuspid replacement	12 (0.7)	27 (0.8)	-0.01	8 (0.5)	8 (0.5)	<0.01
Concomitant maze	75 (4.5)	130 (3.8)	0.04	69 (4.5)	62 (4.1)	0.02
Follow up year	3.6 ± 3.7	3.8 ± 3.6	-0.05	3.7 ± 3.7	3.8 ± 3.7	-0.02
In-hospital outcome						
In-hospital mortality	262 (15.8)	471 (13.6)	0.06	234 (15.3)	227 (14.9)	0.01
New onset stroke	65 (3.9)	136 (3.9)	0.00	57 (3.7)	67 (4.4)	-0.03
New onset dialysis	264 (15.9)	414 (12.0)	0.11	228 (14.9)	187 (12.2)	0.08
Late outcome						
All-cause mortality	869 (52.5)	1,647 (47.6)	0.10	786 (51.4)	759 (49.7)	0.04
MACE*	445 (26.9)	990 (28.6)	-0.04	406 (26.6)	440 (28.8)	-0.05

Variable	Before matching			After matching		
	Female (n = 1,656)	Male (n = 3,458)	STD	Female (n = 1,528)	Male (n = 1,528)	STD
All-cause readmission	1,002 (60.5)	2,110 (61.0)	-0.01	928 (60.7)	939 (61.5)	-0.01

STD, standardized difference; CABG, coronary artery bypass graft; MACE, major adverse cardiovascular events;

Values are given as number (%) or mean \pm standard deviation;

* Including anyone of cardiovascular death, revascularization, acute myocardial infraction or ischemic stroke.