


# Sex Differences in 1-Year Health Status Following Percutaneous Coronary Intervention in Patients Without Acute Myocardial Infarction: Results From the China PEACE Prospective Study

Xin Zheng , MD, PhD;\* Rachel P. Dreyer, PhD;\* Jephtha P. Curtis, MD; Shuling Liu, PhD; Xiao Xu, PhD; Xueke Bai, MS; Xi Li, MD, PhD; Haibo Zhang, MD; Siming Wang, MD; Frederick A. Masoudi, MD, MSPH; John A. Spertus, MD, MPH; Jing Li, MD, PhD; Harlan M. Krumholz, MD, SM;<sup>†</sup> for the China PEACE Collaborative Group<sup>‡</sup>

**Background**—Sex differences in health status outcomes after percutaneous coronary intervention among patients without acute myocardial infarction are not well described.

**Methods and Results**—A total of 2237 patients (33.4% women) without acute myocardial infarction undergoing percutaneous coronary intervention were enrolled from 39 Chinese tertiary hospitals in the PEACE (China Patient-centered Evaluative Assessment of Cardiac Events) prospective percutaneous coronary intervention study. Data were collected immediately before and 1 year following percutaneous coronary intervention. Health status was measured using the disease-specific Seattle Angina Questionnaire (SAQ) Angina Frequency and Quality of Life domains, as well as the SAQ Summary Score. Among the study population, women were older, more often single, had lower levels of education, and had a higher prevalence of cardiac risk factors such as hypertension and diabetes mellitus. Women had lower mean 1-year SAQ Angina Frequency scores (mean±SD, 91.0±17.3 versus 93.9±13.3;  $P<0.01$ ), SAQ Quality of Life scores (mean±SD, 67.3±23.0 versus 70.6±21.6;  $P<0.01$ ), and SAQ Summary Scores (mean±SD, 81.6±13.8 versus 84.8±11.9;  $P<0.01$ ), a difference of marginal clinical significance that persisted after multivariable adjustment. A slightly larger improvement in the SAQ Summary Score was observed in women as compared with men (20.9±22.6 versus 18.5±21.3;  $P=0.007$ ) in unadjusted analysis. However, women were less likely to achieve clinically significant improvement in SAQ Angina Frequency (adjusted odds ratio, 0.67; 95% CI, 0.45–1.00) and SAQ Quality of Life (adjusted odds ratio, 0.73; 95% CI, 0.56–0.96) after adjustment.

**Conclusions**—There were no clinically significant differences in 1-year health status outcomes and improvement in health status by sex among patients without acute myocardial infarction following percutaneous coronary intervention. However, female sex was associated with poorer 1-year health status and a lower likelihood of experiencing clinically improvement in health status.

**Clinical Trial Registration**—URL: <https://www.clinicaltrials.gov/>. Unique identifier: NCT01624922. (*J Am Heart Assoc.* 2020;9:e014421. DOI: 10.1161/JAHA.119.014421.)

**Key Words:** sex differences • health status • percutaneous coronary intervention

From the National Clinical Research Center of Cardiovascular Diseases, State Key Laboratory of Cardiovascular Disease, Chinese Academy of Medical Sciences and Peking Union Medical College, Fuwai Hospital, National Center for Cardiovascular Diseases, Beijing, People's Republic of China (X.Z., X.B., X.L., J.L., H.Z., S.W.); Center for Outcomes Research and Evaluation, Yale New Haven Hospital, New Haven, CT (R.P.D., J.P.C., S.L., X.X., H.M.K.); Section of Cardiovascular Medicine, Department of Internal Medicine, Yale University School of Medicine, New Haven, CT (J.P.C., H.M.K.); Departments of Emergency Medicine (R.P.D.), and Obstetrics, Gynecology and Reproductive Sciences (X.X.), Yale School of Medicine, New Haven, CT; Department of Health Policy and Management, Yale School of Public Health, New Haven, CT (H.M.K.); Division of Cardiology, University of Colorado Anschutz Medical Campus, Aurora, CO (F.A.M.); Department of Cardiovascular Outcomes Research, Saint Luke's Mid America Heart Institute/University of Missouri–Kansas City, Kansas City, MO (J.A.S.).

Accompanying Appendix S1 and Table S1 are available at <https://www.ahajournals.org/doi/suppl/10.1161/JAHA.119.014421>

\*Dr Zheng and Dr Dreyer are co-first authors.

†Dr Krumholz is the senior author.

‡A complete list of the China PEACE Collaborative Group members can be found in Appendix S1.

**Correspondence to:** Xin Zheng, MD, PhD, and Jing Li, MD, PhD, National Clinical Research Center of Cardiovascular Diseases, Fuwai Hospital, 167 Beilishi Rd, Beijing 100037, People's Republic of China. E-mails: [xin.zheng@fwoxford.org](mailto:xin.zheng@fwoxford.org) and [jing.li@fwoxford.org](mailto:jing.li@fwoxford.org)

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## Clinical Perspective

### What Is New?

- There were no clinically significant differences in 1-year health status outcomes or improvement in health status by sex among patients without acute myocardial infarction following percutaneous coronary intervention.
- Female sex was associated with poorer 1-year health status and a lower likelihood of experiencing clinically improvement in health status.

### What Are the Clinical Implications?

- Women can benefit as much as men from percutaneous coronary intervention with regard to their unadjusted health status outcomes.
- Further studies are needed to clarify the association between sex and health status following percutaneous coronary intervention.

Percutaneous coronary intervention (PCI) is a cornerstone in the treatment for patients with coronary artery disease (CAD), including those with and without acute myocardial infarction (AMI). Unlike patients with AMI, those undergoing PCI for stable coronary disease have substantially lower risks for death and major cardiovascular events, especially given the wide use of more-sensitive biomarkers of myocardial necrosis, such as troponins, as the key criteria for diagnosing AMI. Therefore, improving health status–related (symptoms, functioning, and quality of life) outcomes have become increasingly important for these patients.

Earlier studies have shown improved health status following PCI among stable patients.<sup>1–7</sup> However, these studies did not stratify the population by sex. Whether women can benefit as much as men from PCI with regard to their health status outcomes remains unclear. Among patients undergoing PCI, women tend to have worse socioeconomic status than men and hence may experience greater barriers to access to follow-up care and have poor adherence to medications after discharge.<sup>8–10</sup> Moreover, women more likely have other comorbidities and microvascular dysfunction, where PCI may be less effective in relieving symptoms.<sup>11</sup> Thus, it is possible that women may have more residual symptoms and worse quality of life after PCI compared with men.<sup>8–10,12,13</sup> However, data on sex-based differences in such outcomes for patients without AMI are sparse.<sup>1,14–16</sup>

Data from China can provide a unique opportunity for investigating sex differences in patients' health status after PCI. The volume of PCI procedures has increased substantially over the past decade, reaching 915 256 procedures in 2018, with 65% performed among patients without AMI.<sup>17–21</sup>

Understanding how women and men differ in symptoms and quality of life after PCI may help guide clinical decision making regarding PCI and inform better tailored care for the large number of women undergoing these procedures in China. Such information may also inform care for women in Western countries.

Using data from the China PEACE-Pro prospective PCI Study (China Patient-centered Evaluative Assessment of Cardiac Events Prospective Percutaneous Coronary Intervention Study), we sought to determine whether: (1) women have similar health status at 1 year after PCI among patients without AMI; (2) improvement in health status from baseline to 1 year following PCI differs by sex; and (3) such sex differences persist after adjustment for patients' sociodemographics, clinical characteristics, treatment factors, and baseline health status.

## Methods

**Disclosure Statement** The data and statistical code are not available to other researchers at this time.

## Study Population and Study Design

The design of the China PEACE-Pro prospective PCI Study has been published previously.<sup>22</sup> In brief, between 2012 and 2013, we enrolled 4225 consecutive patients undergoing PCI for CAD who had at least 1 coronary stent implanted at 40 sites (39 participating tertiary hospitals) located in 18 provinces in China. For this study, we excluded patients who died during hospitalization (n=11), those with treatment withdrawal because of serious illness (n=1), those who were transferred out (n=8), and those with AMI (n=1968) and focused on participants without AMI (n=2237), including those with unstable angina (UA; n=1599) or stable CAD (n=638). Diagnosis of AMI was determined by the clinical discharge diagnosis terms recorded in medical charts.

The central ethics committee at the China National Centre of Cardiovascular Disease, local ethics committee at each participating hospital, and the Yale University Human Investigation Committee approved this study. The Chinese government funded the study and had no role in the study design, data collection, data analysis, data interpretation, or writing of the report. The study was registered on [www.clinicaltrials.gov](http://www.clinicaltrials.gov) (NCT01624922).

## Data Collection and Variable Definitions

We collected patients' baseline characteristics and in-hospital treatment and complications by central medical chart abstraction and in-person interview by trained site investigators during the index hospitalization. Patients' baseline characteristics

included social demographics, cardiac risk factors, comorbidities, and disease severity at admission. In-hospital treatment included number of vessels treated, complete versus incomplete revascularization, type of stent placed, access site, and medications used. In-hospital complications included AMI, stroke, target vessel revascularization, and bleeding events. Complete revascularization was defined as absence of diameter stenosis  $\geq 50\%$  in major coronary arteries or their side branches with a diameter  $\geq 2.5$  mm after successful stent implantation during index hospitalization. In contrast, incomplete revascularization was defined as the presence of diameter stenosis  $\geq 50\%$  in major coronary arteries or their side branches with a diameter  $\geq 2.5$  mm after successful stent implantation during index hospitalization.

We collected data on patients' clinical outcomes from discharge to 1 year. In addition, we conducted follow-up interviews at 1, 6, and 12 month after index hospitalization to characterize clinical outcomes and health status using validated patient-reported outcome measures. For this study, we focused on 12-month outcomes. Clinical outcomes included all-cause death, cardiac death, nonfatal AMI, ischemic stroke, coronary revascularization, and a composite of major adverse cardiac events (including cardiac death, nonfatal AMI, ischemic stroke, and coronary revascularization). All the clinical cardiac events were adjudicated by trained cardiologists. Disease-specific (Seattle Angina Questionnaires [SAQ]) health status instruments translated into Chinese were administered by trained site investigators. If the relative of the patients, rather than the patient him- or herself answered phone survey, only the clinical outcomes were collected.

The SAQ is a 19-item disease-specific health status measure for patients with CAD.<sup>23</sup> It has a 4-week recall period. The 5 domains of the SAQ include physical limitation, angina stability, angina frequency, treatment satisfaction, and quality of life. Each domain ranges from 0 to 100 points, with higher scores indicating higher levels of functioning, fewer symptoms, and greater quality of life or treatment satisfaction. The SAQ has similar psychometric properties in men and women and to validly quantify angina frequency as compared with daily diaries. In this study, we used SAQ-AF (SAQ Angina Frequency) score and SAQ-QoL (SAQ Quality of Life) score.<sup>24,25</sup> For both SAQ-AF and SAQ-QoL scores, an increase of  $\geq 10$  points was considered a clinically significant improvement.<sup>7</sup> Additionally, we used the SAQ-SS (SAQ Summary Score), which summarizes the physical limitation, angina frequency, and quality-of-life domains, to assess patients' overall angina-related health status.<sup>26</sup>

## Statistical Analysis

We used frequency and percentages to describe categorical variables and means with SD or medians with interquartile

ranges to describe continuous variables. We compared baseline characteristics between women and men using chi-squared tests, Student *t* tests, or Kruskal-Wallis tests as appropriate. Mean SAQ-AF, SAQ-QoL, and SAQ-SS at baseline and 12 months were calculated and plotted between women and men, and the change from baseline to 12 months was represented as density plots. Then, mean SAQ-AF, SAQ-QoL, and SAQ-SS at baseline and 1 year were compared between women and men, as well as the proportion of patients free of angina (SAQ-AF score=100). Similarly, we compared mean change from baseline to 1 year in SAQ-AF, SAQ-QoL, and SAQ-SS, as well as the proportion of patients achieving clinically significant improvements from baseline in SAQ-AF and SAQ-QoL, between men and women. Likewise, all-cause mortality, cardiac death, stroke, AMI, coronary revascularization and a composite of major adverse cardiac events within 1 year following PCI were compared between women and men.

We tested the distribution of health status at 12 months. Both SAQ-QoL and SAQ-SS were normally distributed. However, SAQ-AF score was left-skewed. Thus, we modeled SAQ-QoL and SAQ-SS using linear regressions to investigate the independent effect of sex on 1-year health status. We also modeled the likelihood of being free of angina (SAQ-AF score=100) and the likelihood of achieving clinical significantly improvement in SAQ-AF score and SAQ-QoL score using logistic regression. For each of these regressions, we started with an unadjusted model (model 0), which only included sex. Then, we incrementally adjusted for additional covariates. The first model (model 1) included model sociodemographics (age, marital status, education, working status, and health insurance). The second model (model 2) added risk factors and comorbidities (hypertension, diabetes mellitus, hyperlipidemia, smoking status, body mass index  $>24$  kg/m<sup>2</sup>, family history of CAD, previous CAD, previous AMI, previous PCI, previous coronary artery bypass graft, previous stroke, peripheral artery disease, and heart failure) to model 1. The third model (model 3) added clinical characteristics at admission (eGFR, acute heart failure, acute stroke, and extent of CAD) to model 2. The fourth model (model 4) added treatment factors (number of vessels treated during PCI, stent implanted, access site, and medication during hospitalization) to model 3. The fifth model (model 5) added in-hospital complications (major bleeding, any bleeding, blood transfusion, stroke, AMI, target vessel revascularization, coronary artery bypass graft, and length of stay) to model 4. The sixth model (model 6) added baseline health status to model 5.

The proportion of missing data of health status at 1 year was 24.0% and 23.8% among patients with UA and stable CAD, respectively. Among this cohort, women had more patients with missing data at 1-year health status than men. Baseline characteristics of those patients with complete health status

data versus those with missing data at 1 year, overall and stratified by sex, among the cohorts are presented in Table S1.

To minimize the effect of selection bias, we constructed a nonparsimonious, multivariable logistic regression model to determine the probability of having missing health status data. We then weighted each of the observed patients by inverse probability of the likelihood of having missing data to increase the contribution of the experience of those most likely to have missing follow-up assessments.<sup>27</sup> Given that the missing values of the covariates in each model were rare (<2%), except for body mass index (<20%), missing values for covariates were imputed using multiple imputation. Specifically, we replaced each missing value with a set of values generated from its predictive distribution, given the observed data, and repeated this procedure to generate multiple imputed data sets. Each imputed data set was then analyzed separately using the corresponding modeling methods, and the final results were obtained by combining across all imputed data sets using Rubin's rule to account for uncertainty of imputation. All comparisons were 2-sided, with statistical significance defined as  $P<0.05$ . Statistical analyses were performed using SAS (version 9.4; SAS Institute Inc., Cary, NC) and R software (version 3.4.1; R Foundation for Statistical Computing, Vienna, Austria).

## Results

### Study Population and Baseline Characteristics

A total of 2237 patients without AMI undergoing PCI were included. Baseline characteristics are shown in Table 1. Median age was 63 years (interquartile range, 55–70). Women comprised 33.4%. Women were older, more often single, had a lower level of education, and were less likely to be employed and have urban insurance compared with men. Women were also less likely to be smokers and have a history of AMI and more likely to have hypertension, diabetes mellitus, hyperlipidemia, and worse renal function. During hospitalization, there were no significant sex differences in the number of vessels treated, proportion of complete revascularization, as well as use of medications and occurrence of complications during hospitalization. Women had a longer length of stay than men.

### Clinical Outcomes

At 1 year after PCI, the rate of all-cause mortality was similar between men and women in this cohort (1.7% versus 1.5%;  $P=0.716$ ). Similarly, the rate of the composite end point, major adverse cardiac events, did not differ significantly between women and men among this cohort (Table 2).

## Unadjusted Sex Difference in Health Status

As shown in Table 3 and Figures 1 and 2, women had significantly lower baseline scores for SAQ-AF ( $58.5\pm 30.4$  versus  $62.2\pm 30.4$ ;  $P<0.01$ ), SAQ-QoL ( $52.7\pm 24.0$  versus  $57.1\pm 23.7$ ;  $P<0.01$ ), and SAQ-SS ( $60.9\pm 20.0$  versus  $66.3\pm 19.3$ ;  $P<0.01$ ). The proportion of patients without angina did not vary by sex (17.1% versus 20.3%;  $P=0.196$ ). At 1 year, women had lower SAQ-AF scores (mean $\pm$ SD,  $91.0\pm 17.3$  versus  $93.9\pm 13.3$ ;  $P<0.01$ ), SAQ-QoL scores (mean $\pm$ SD,  $67.3\pm 23.0$  versus  $70.6\pm 21.6$ ;  $P<0.01$ ), SAQ-SS ( $81.6\pm 13.8$  versus  $84.8\pm 11.9$ ;  $P<0.01$ ) and a lower proportion of patients without angina (50.3% versus 57.1%;  $P<0.01$ ) as compared with men. Of note, AF scores improved from baseline to 1 year in both men and women, and there were no sex differences in the change of SAQ-AF ( $33.9\pm 33.5$  versus  $32.9\pm 31.7$ ;  $P=0.343$ ) and SAQ-QoL scores ( $13.6\pm 31.3$  versus  $12.6\pm 30.6$ ;  $P=0.594$ ) or the proportion of patients who had a clinically significant improvement in SAQ-AF (54.6% versus 55.6%;  $P=0.254$ ) and SAQ-QoL scores (36.4% versus 37.8%;  $P=0.170$ ). However, women had a larger improvement of SAQ-SS ( $20.9\pm 22.6$  versus  $18.5\pm 21.3$ ;  $P=0.007$ ).

## Independent Association of Sex With 1-Year Health Status Scores and Clinically Significant Improvement in Health Status

Among the 2237 patients without AMI at baseline, 535 (23.9%) did not have follow-up health status scores at 1 year. By fitting model 0 (ie, unadjusted model where sex is the only risk factor), women had  $-3.5$  and  $-3.4$  points lower in SAQ-QoL scores and SAQ-SS, respectively, as compared with men (95% CI for parameter coefficients,  $-5.7$  to  $-1.2$  and  $-4.6$  to  $-2.1$ , respectively; Figure 3). After adjusting for potential confounders, women still had significantly lower SAQ-QoL scores ( $-3.2$  points; 95% CI,  $-5.9$  to  $-0.5$ ) and SAQ-SS ( $-2.7$  points, 95% CI  $-4.2$  to  $-1.2$ ) at 1 year compared with men. Similarly, women were less likely to be free of angina after PCI as compared with men, even after adjusting for confounders (odds ratio, 0.63; 95% CI, 0.49–0.81). After adjusting for confounders, women were less likely to achieve clinically significant improvement in SAQ-AF (odds ratio, 0.67; 95% CI, 0.45–1.00) and SAQ-QoL scores (odds ratio, 0.73; 95% CI, 0.56–0.96) as compared with men (Figure 4).

## Discussion

To our knowledge, this is the first study to explore sex differences in long-term health status outcomes following PCI among patients without AMI in China. Among this cohort recruited from real-world practice, women were more likely to



**Table 1.** Baseline Characteristics of Patients Without AMI Undergoing PCI Stratified by Sex

	Overall (n=2237)	Men (n=1490)	Women (n=747)	Statistic	P Value
<b>Sociodemographics</b>					
Age, y, mean (SD)	62.26 (10.0)	61.09 (10.4)	64.6 (8.9)	-8.362	<0.0001
Age, median (IQR)	63 (55, 70)	61 (54, 69)	65 (59, 71)	-8.362	<0.0001
Married, n (%)	2026 (90.6)	1402 (94.1)	624 (83.5)	64.948	<0.0001
Education (high school or higher education), n (%)	312 (13.9)	270 (18.1)	42 (5.6)	64.758	<0.0001
Currently/ever work, n (%)	1915 (85.6)	1361 (91.3)	554 (74.2)	119.16	<0.0001
Health insurance, n (%)				16.819	0.0002
Urban insurance	1543 (69)	1070 (71.8)	473 (63.3)		
Rural cooperative medical service/None	691 (30.9)	418 (28.1)	273 (36.5)		
Unknown	3 (0.1)	2 (0.2)	1 (0.1)		
<b>Cardiac risk factors, n (%)</b>					
Hypertension	1545 (69.1)	947 (63.6)	598 (80.1)	63.376	<0.0001
Diabetes mellitus	671 (30.0)	396 (26.6)	275 (36.8)	24.830	<0.0001
Hyperlipidemia	1113 (49.8)	712 (47.8)	401 (53.7)	6.9191	0.0085
Current smoker	828 (37.0)	772 (51.8)	56 (7.5)	419.12	<0.0001
BMI $\geq 24$ kg/m <sup>2</sup>	1133 (50.6)	754 (50.6)	379 (50.7)	0.0035	0.9529
Family history of CAD	253 (11.3)	162 (10.9)	91 (12.2)	0.8507	0.3564
<b>Medical history, n (%)</b>					
Previous AMI	373 (16.7)	287 (19.3)	86 (11.5)	21.504	<0.0001
Previous PCI	373 (16.7)	274 (18.4)	99 (13.3)	9.4474	0.0021
Previous CABG	15 (0.7)	10 (0.7)	5 (0.7)	0.0000	0.9961
Previous stroke	356 (15.9)	205 (13.8)	151 (20.2)	15.497	0.0001
Congestive heart failure	772 (34.5)	493 (33.1)	279 (37.3)	3.9992	0.0455
<b>Clinical characteristics at admission, n (%)</b>					
eGFR <60 mL/min per 1.73 m <sup>2</sup>	245 (11.0)	123 (8.3)	122 (16.3)	33.3400	<0.0001
Acute heart failure	17 (0.8)	10 (0.7)	7 (0.9)	0.4666	0.4946
Acute stroke	53 (2.4)	34 (2.3)	19 (2.5)	0.1472	0.7012
Extent of CAD, n (%)				2.9090	0.4059
One-vessel disease	961 (43.0)	655 (44.0)	306 (41.0)		
Two-vessel disease	803 (35.9)	529 (35.5)	274 (36.7)		
Three-vessel disease	458 (20.5)	298 (20)	160 (21.4)		
Nonobstructive	15 (0.7)	8 (0.5)	7 (0.9)		
LM disease, n (%)	119 (5.3)	83 (5.6)	36 (4.8)	0.5574	0.4553
<b>Treatments, n (%)</b>					
No. of vessels treated during PCI				5.6688	0.1289
Zero-vessel	12 (0.5)	9 (0.6)	3 (0.4)		
One-vessel	1660 (74.2)	1090 (73.2)	570 (76.3)		
Two-vessel	539 (24.1)	369 (24.8)	170 (22.8)		
Three-vessel	26 (1.2)	22 (1.5)	4 (0.5)		
Complete vs incomplete revascularization				1.4224	0.4911
Complete	225 (10.1)	146 (9.8)	79 (10.6)		

Continued

Table 1. Continued

	Overall (n=2237)	Men (n=1490)	Women (n=747)	Statistic	P Value
Incomplete	1036 (46.3)	681 (45.7)	355 (47.5)		
Unknown	976 (43.6)	663 (44.5)	313 (41.9)		
Stent				0.9388	0.3326
DES	2114 (94.5)	1413 (94.8)	701 (93.8)		
BMS	0 (0.0)	0 (0.0)	0 (0.0)		
Unknown	123 (5.5)	77 (5.2)	46 (6.2)		
Access site				2.5136	0.2846
Radial	2013 (90)	1345 (90.3)	668 (89.4)		
Femoral	172 (7.7)	107 (7.2)	65 (8.7)		
Others	52 (2.3)	38 (2.6)	14 (1.9)		
Medications during hospitalization, n (%)					
Aspirin	2046 (91.5)	1357 (91.1)	689 (92.2)	0.8600	0.3537
Clopidogrel/ticagrelor	2226 (99.5)	1482 (99.5)	744 (99.6)	0.1862	0.6661
Statins	2209 (98.7)	1469 (98.6)	740 (99.1)	0.8980	0.3433
Beta-blocker	1806 (80.7)	1197 (80.3)	609 (81.5)	0.4534	0.5007
ACEI/ARB	1443 (64.5)	957 (64.2)	486 (65.1)	0.1504	0.6981
In-hospital complications, n (%)					
Major bleeding	1 (0)	0 (0)	1 (0.1)	1.9955	0.1578
Any bleeding	88 (3.9)	55 (3.7)	33 (4.4)	0.6947	0.4046
Blood transfusion	6 (0.3)	3 (0.2)	3 (0.4)	0.7460	0.3878
Stroke	85 (3.8)	49 (3.3)	36 (4.8)	3.1892	0.0741
AMI	31 (1.4)	18 (1.2)	13 (1.7)	1.0314	0.3098
TVR	15 (0.7)	11 (0.7)	4 (0.5)	0.3072	0.5794
CABG	2 (0.1)	2 (0.1)	0 (0)	1.0036	0.3164
Length of stay, mean (SD)	10.2 (5.1)	9.9 (5.1)	10.7 (5.0)	3.7999	0.0001
Length of stay, median (IQR)	9 (7,12)	9 (7,12)	9 (7,13)	3.7999	0.0001

ACEI indicates angiotensin-converting enzyme inhibitor; AMI, acute myocardial infarction; ARB, angiotensin receptor blocker; BMI, body mass index; BMS, bare metal stent; CABG, coronary artery bypass grafting; CAD, coronary heart disease; DES, drug-eluting stent; eGFR, estimated glomerular filtration rate; IQR, interquartile range; LM, left main coronary artery disease; MI, myocardial infarction; PCI, percutaneous coronary intervention; TVR, target vessel revascularization.

be older and have poorer socioeconomic conditions and more cardiovascular risk factors. Nevertheless, there were no significant differences in treatment and 1-year clinical outcomes by sex. In this context, although women had lower baseline scores of health status, there were no clinically significant differences in unadjusted health status scores at 1 year or likelihood to achieve clinically significant improvements in health status. However, after adjustment for important confounders, women had lower health status scores at 1 year and were less likely to be free of angina or to achieve clinically significant improvements in health status 1 year after PCI. Our findings provide a more complete picture of sex differences in health status outcomes after PCI among stable patients. This information is important for identifying

the opportunities for improvement in the care of coronary artery disease for women without AMI.

In our study, we used patients without AMI, including those labeled as UA and stable CAD, as our study population. In real practice, the diagnosis of UA is increasingly controversial. More patients labeled with UA previously were diagnosed as non-ST-segment-elevation MI with the use of troponin, particularly high-sensitivity troponin, resulting in uncertainty of the diagnosis of UA and decreased risk of this cohort. Overdiagnosis of UA may occur because of external factors, such as reporting appropriateness or differences in reimbursement.<sup>28</sup> Therefore, assessing health status outcomes after PCI among this clearly defined population may provide practical insight for real clinical practice.

**Table 2.** Clinical Outcomes of Patients Without AMI During 1 Year Post-PCI Stratified by Sex

	Overall (n=2237)	Men (n=1490)	Women (n=747)	Statistic	P Value
All-cause death, n (%)	36 (1.6)	25 (1.7)	11 (1.5)	0.1324	0.7159
Cardiac death, n (%)	21 (0.9)	14 (0.9)	7 (0.9)	0.0000	0.9954
Nonfatal AMI, n (%)	10 (0.4)	5 (0.3)	5 (0.7)	1.2455	0.2644
Ischemic stroke, n (%)	12 (0.5)	7 (0.5)	5 (0.7)	0.3713	0.5423
Coronary revascularization, n (%)	77 (3.4)	50 (3.4)	27 (3.6)	0.1002	0.7516
MACE, n (%)	111 (5.0)	72 (4.8)	39 (5.2)	0.1594	0.6897

AMI indicates acute myocardial infarction; MACE, major adverse cardiovascular events; PCI, percutaneous coronary intervention.

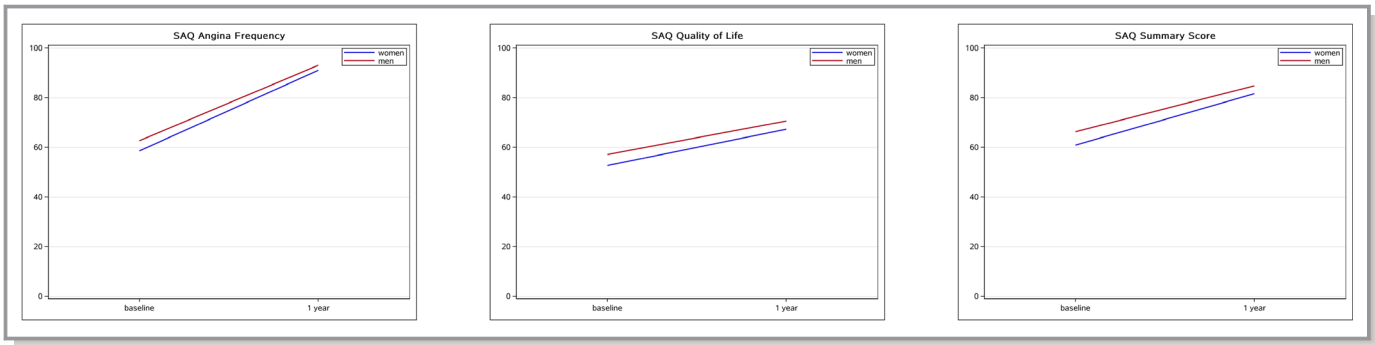
We observed slightly lower average unadjusted 1-year SAQ-AF and SAQ-QoL scores in women compared with men; however, the difference did not reach the threshold for what is defined as a clinically significant difference, given that a mean difference of >5 points between groups is considered clinically significant.<sup>29</sup> Nevertheless, we observed that women had lower health status scores in symptoms and quality of life at 1 year and were less likely to be free of angina after PCI. Previous studies have shown that observed lower scores at 1 year is largely attributable to lower baseline scores.<sup>13,30</sup> However, these sex differences persisted even after adjustment for covariates and baseline health status in this study. Several potential reasons may account for these findings.

First, intravascular ultrasound/near infrared spectroscopy demonstrated that there were no sex differences in plaque morphology in stable patients.<sup>31,32</sup> However, women are more likely to have coronary microvascular dysfunction, even in those with obstructive CAD. Any symptoms attributable to microvascular dysfunction, cannot be completely relieved by PCI. Accordingly, quality-of-life scores are usually lower in symptomatic patients compared with their asymptomatic counterparts.<sup>33</sup> Second, in this cohort, women had poorer educational status, which may be related to access to care and poor adherence to medication for secondary prevention after discharge. This could partly account for higher proportion of patients with angina and worse health status outcome

**Table 3.** Health Status of Patients Without AMI at 1 Year Post-PCI Stratified by Sex

	Overall (n=2237)	Men (n=1490)	Women (n=747)	Statistics	P Value
SAQ-AF score (mean, SD)					
Baseline	61.0 (30.4)	62.2 (30.4)	58.5 (30.4)	-2.7410	0.0061
1 y	93.0 (14.8)	93.9 (13.3)	91.0 (17.3)	-3.1800	0.0015
Change from baseline to 1 y	33.2 (32.2)	32.9 (31.7)	33.9 (33.5)	0.9479	0.3432
Clinically significant improvement from baseline to 1 y	1237.0 (55.3)	829.0 (55.6)	408.0 (54.6)	2.7376	0.2544
SAQ-QoL score (mean, SD)					
Baseline	55.6 (23.9)	57.1 (23.7)	52.7 (24.00)	-4.0840	<0.0001
1 y	69.5 (22.1)	70.6 (21.6)	67.3 (23.0)	-2.5980	0.0094
Change from baseline to 1 y	12.9 (30.8)	12.6 (30.6)	13.6 (31.3)	0.5327	0.5943
Clinically significant improvement from baseline to 1 y	835.0 (37.3)	563.0 (37.8)	272.0 (36.4)	3.5413	0.1702
SAQ-SS score (mean, SD)					
Baseline	64.5 (19.7)	66.3 (19.3)	60.9 (20.0)	-5.8790	<0.0001
1 y	83.7 (12.6)	84.8 (11.9)	81.6 (13.8)	-4.1490	<0.0001
Change from baseline to 1 y	19.3 (21.8)	18.5 (21.3)	20.9 (22.6)	2.6952	0.0070
The patients without angina (SAQ-AF score=100), n (%)					
Baseline	430.0 (19.2)	302.0 (20.3)	128.0 (17.1)	3.2592	0.1960
1 y	1227.0 (54.9)	851.0 (57.1)	376.0 (50.3)	9.8420	0.0073

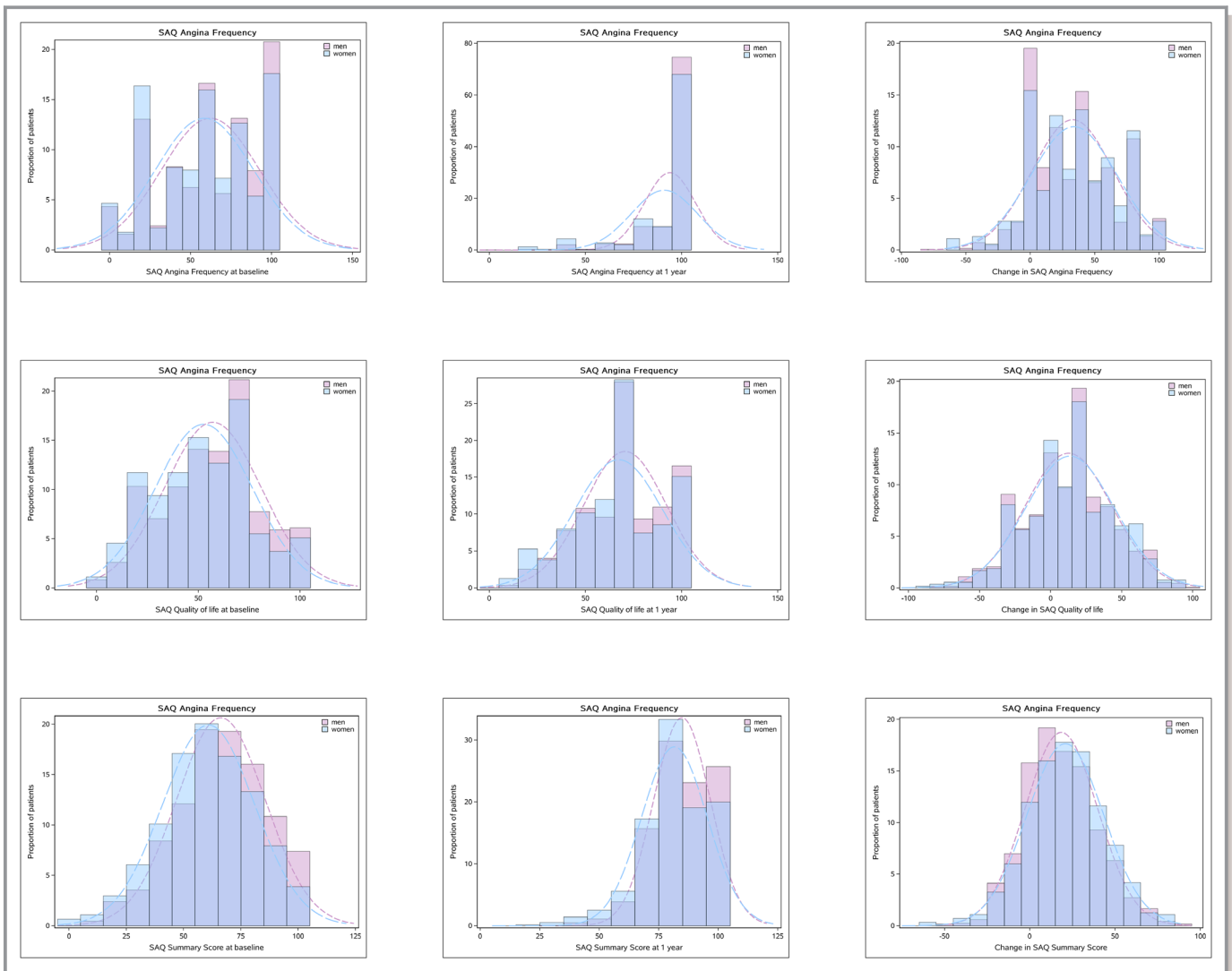
AMI indicates acute myocardial infarction; PCI, percutaneous coronary intervention, SAQ-AF, Seattle Angina Questionnaire Angina Frequency; SAQ-QoL, Seattle Angina Questionnaire Quality of Life; SAQ-SS, Seattle Angina Questionnaire Summary Score.



**Figure 1.** Mean Seattle Angina Questionnaire (SAQ) scores stratified by sex at baseline and 1 year.

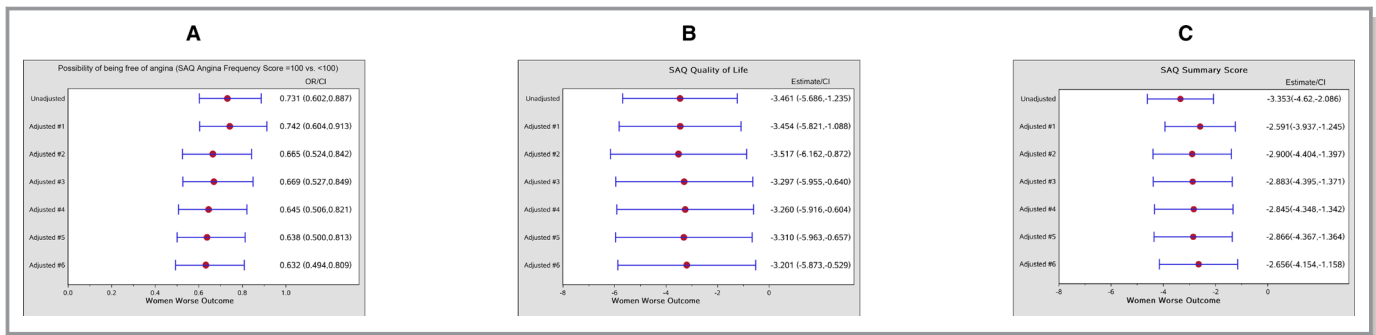
at 1 year. Further studies on other psychosocial factors, such as depression, anxiety, and return to work, are needed to clarify the mechanisms for this difference in health status between women and men.

Although women had slightly lower scores in health status outcomes at baseline and 1 year, we found that women achieved similar magnitude of benefit from PCI in reducing frequency of angina and quality of life, even slightly greater



**Figure 2.** Distribution of Seattle Angina Questionnaire (SAQ) scores stratified by sex at baseline, 1 year, and the change form baseline to 1 year.





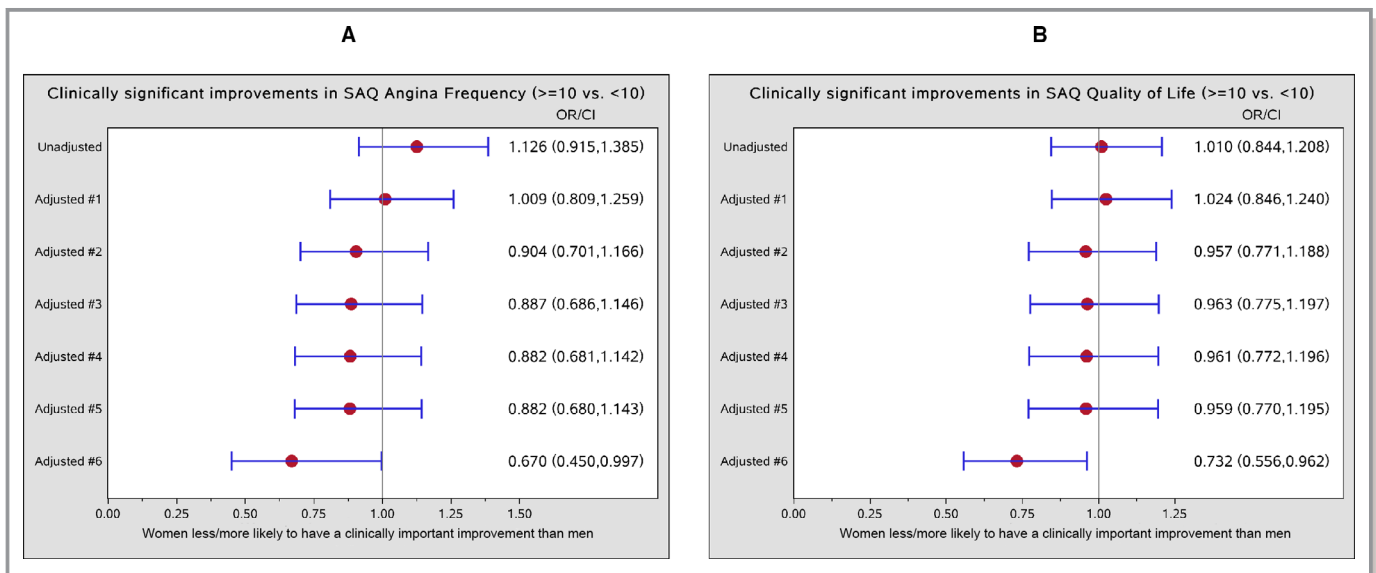
**Figure 3.** Independent effect of sex on health status at 1 year post-PCI among patients without AMI. **(A)** Possibility of being free of angina (Seattle Angina Questionnaire Angina Frequency score=100 vs <100). **(B)** Seattle Angina Questionnaire Quality of Life score. **(C)** Seattle Angina Questionnaire Summary Score. AMI indicates acute myocardial infarction; OR, odds ratio; PCI, percutaneous coronary intervention; SAQ, Seattle Angina Questionnaire.

improvement in overall health status, as compared with men. However, after adjustment of important covariates particularly baseline health status, risk factors, and comorbidities, female sex was associated with less likelihood to derive improvements in health status. The mechanism is not clear. Overall, in this cohort, women had lower baseline scores in health status and more risk factors and comorbidities, as compared with men, which were considered as the strongest factors for improvement after PCI.<sup>34</sup> This higher likelihood of improvement was offset by the effect of female sex, resulting in a similar likelihood of improvement between women and men. These findings could be valuable for physicians treating women with PCI aiming to increase their quality of life as

they treat men when this procedure is indicated. On the other hand, additional intervention may be needed to achieve the therapeutic goal of stable CAD care and reduce the disparity in outcomes between men and women.

### Limitations

The findings of this study should be interpreted in the context of several limitations. First, similar to other longitudinal, observational studies, such as TRIUMPH (Translational Research Investigating Underlying Disparities in Acute Myocardial Infarction Patients' Health Status) and PREMIER (Prospective Registry Evaluating Outcomes After Myocardial



**Figure 4.** Independent effect of sex on clinically significant improvement in health status from baseline to 1 year post-PCI among the patients without AMI. **(A)** Possibility of achieving clinically significant improvement in SAQ-AF score; **(B)** Possibility of achieving clinically significant improvement in SAQ-QoL score. Seattle Angina Questionnaire summary score. AMI indicates acute myocardial infarction; OR, odds ratio; PCI, percutaneous coronary intervention; SAQ, Seattle Angina Questionnaire; SAQ-AF, Seattle Angina Questionnaire Angina Frequency; SAQ-QoL, Seattle Angina Questionnaire Quality of Life.

Infarctions: Events and Recovery),<sup>35,36</sup> we could only enroll and follow up patients who consented to participate in the study. Hence, our findings may not generalize to all patients without AMI. Second, 23.9% of patients were missing health status data. To prevent potential biased estimation of sex differences in health status outcomes, we estimated the potential bias by performing a sensitivity analysis comparing baseline characteristics for men and women with and without complete health status data (Table S1). Furthermore, we constructed nonparsimonious, multivariable logistic regression models to determine the probability of having missing data. We then weighted each of the observed patients by inverse probability of the likelihood to have missing data, so that we preferentially weighted the experience of those most like the patients who were missing follow-up assessments. Additionally, in this study, telephone interviews were conducted when in-person interviews were not feasible, and patient-reported outcomes, such as SAQ, were assessed. However, if the patients' relatives answered the call, the patient-reported outcomes would not be asked and assessed. Thus, the lack of follow-up data for these patients was primarily attributed to relevant questions not asked when the patients' relatives completed the interview (469; 21.0%), rather than that they definitely had worse clinical outcomes. Thus, the effect of missing data on the result we estimated was small. Third, we did not collect information on additional treatments or comorbidities within 1 year after PCI, which could potentially affect patients' 1-year health status. Finally, the Chinese PEACE (Patient-centered Evaluative Assessment of Cardiac Events) prospective study was conducted 6 years ago; the analysis in this study may not completely reflect the current situation because of the change of treatment pattern and socioeconomic conditions.

## Conclusions

There was no clinically significant difference in 1-year health status outcomes and improvement in health status by sex among patients without AMI following PCI. However, women had poorer 1-year health status and a lower likelihood of deriving clinically improvement in health status. Further studies are needed to clarify the association between sex and health status following PCI.

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## Disclosures

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# **SUPPLEMENTAL MATERIAL**

## Appendix. Full list of hospitals in the China PEACE prospective PCI study

	<b>Hospital</b>	<b>Province /Municipality</b>	<b>City</b>	<b>Staff</b>	<b>Initials</b>	<b>Title</b>
1	Air Force General Hospital, PLA	Beijing	Beijing	Jianchang Wang	JCW	Chief physician
2	Anhui Provincial Hospital	Anhui	Hefei	Congchun Huang Haitao Zhang Xiangyong Kong	CCH HTZ XYK	Chief physician Associate chief physician Resident doctor
3	Baotou Central Hospital	Inner Mongolia	Baotou	Ruiping Zhao Wei Du Hongyu Li	RPZ WD HYL	Chief physician Resident doctor Resident doctor
4	China-Japan Union Hospital of Jilin University	Jilin	Changchun	Ping Yang Zhaohui Feng Cuiying Mao Bing Li	PY ZHF CYM BL	Chief physician Nurse-in-Charge Attending physician Resident doctor
5	First Hospital of Shanxi Medical University	Shanxi	Taiyuan	Qinghua Han Liqin Duan Chunrong Jin	QHH LQD CRJ	Chief physician Associate chief physician Associate chief physician
6	Fujian Provincial Hospital	Fujian	Fuzhou	Yansong Guo Feng Lin Xinjing Chen	YSG FL XJC	Chief physician Associate chief physician Attending physician
7	Fuwai Hospital	Beijing	Beijing	Yongjian Wu Jianjun Li Chenggang Zhu Yanmeng Tian Qian Dong	YJW JLJ CGZ YMT QD	Chief physician Chief physician Associate chief physician Resident doctor Nurse
8	General Hospital of China FAW Group Corporation	Jilin	Changchun	Hongtao Pan	HTP	Associate chief physician
9	Guilin People's Hospital	Guangxi	Guilin	Lei Sun Peng Gao Yanni Zhuang Wei Li	LS PG YNZ WL	Attending physician Resident doctor Resident doctor Resident doctor
10	Inner Mongolia People's Hospital	Inner Mongolia	Huhehot	Yajun Han Ping Zhao Weiyi Zhao	YJH PZ WYZ	Chief physician Resident doctor Resident doctor
11	Inner Mongolia Baogang Hospital	Inner Mongolia	Baotou	Zhiping Ge Huihua Wen Qiaoling Liu Yongdong Li	ZPG HHW QLL YDL	Chief physician Associate chief physician Chief physician Chief physician
12	Jiangxi Provincial People's Hospital	Jiangxi	Nanchang	Lang Hong Linfeng Li Lihua Yuan Yun Li	LH LFL LHY YL	Chief physician Associate chief physician Co-chief nurse Nurse-in-Charge
13	Jinghai County	Tianjin	Tianjin	Peihua Zhao	PHZ	Chief physician



	<b>Hospital</b>	<b>Province /Municipality</b>	<b>City</b>	<b>Staff</b>	<b>Initials</b>	<b>Title</b>
	Hospital			Jingsheng Sun Rengui Chai	JSS RGC	Attending physician Resident doctor
14	Nanyang Central Hospital	Henan	Nanyang	Shouzhong Yang Yudong Li Jianbu Gao Songyu Zhang	SZY YDL JBG SYZ	Chief physician Chief physician Associate chief physician Attending physician
15	Qingdao Fuwai Hospital	Shandong	Qingdao	Ying Yang Guixin Wu Jiajia Mao Cheng Zheng	YY GXW JJM CZ	Associate chief physician Attending physician Nurse Admin
16	Qinghai Cardiovascular and Cerebrovascular Hospital	Qinghai	Xining	Huiping Bian Bo Chen Jiandong Cao	HPB BC JDC	Chief physician Associate chief physician Attending physician
17	Qinzhou Second People's Hospital	Guangxi	Qinzhou	Hua Yan Liyuan Chen Qiuxia Liu Lin Chen	HY LYC QXL LC	Chief physician Associate chief physician Resident doctor Attending physician
18	Shanxi Cardiovascular Hospital	Shanxi	Taiyuan	Bao Li Bin Yang Jianhua Li Jianhong Wang	BL BY JHL JHW	Chief physician Associate chief physician Resident doctor Resident doctor
19	Shenyang Northern Hospital	Liaoning	Shenyang	Yaling Han Xiaozeng Wang Haiwei Liu	YLH XZW HWL	Chief physician Chief physician Associate chief physician
20	Shanghai Jiao Tong University School of Medicine	Jiangsu	Suzhou	Feng Liu Xiangfei Meng Bo Shao Zhanling Liao	FL XFM BS ZLL	Chief physician Attending physician Attending physician Resident doctor
21	TEDA International Cardiovascular Hospital	Tianjin	Tianjin	Zhigang Liu Wenbin Jing Zhipeng Guo	ZGL WBJ ZPG	Chief physician Chief physician Associate chief physician
22	The Affiliated Hospital of Qingdao University	Shandong	Qingdao	Changyong Zhou Yini Wang Tao Yu	CYZ YNW TY	Chief physician Attending physician Resident doctor
23	The First Affiliated Hospital of Fujian Medical University	Fujian	Fuzhou	Jinxiu Lin Dajun Chai Wenxiang Zhao	JXL DJC WXZ	Chief physician Associate chief physician Resident doctor
24	Tongji Hospital of Tongji Medical College, Huazhong University of Science and Technology	Wuhan	Wuhan	Daowen Wang Jiangang Jiang Xiaoqing Shen	DWW JGJ XQS	Chief physician Chief physician Nurse-in-Charge

	<b>Hospital</b>	<b>Province /Municipality</b>	<b>City</b>	<b>Staff</b>	<b>Initials</b>	<b>Title</b>
25	The First Hospital of Jilin University	Jilin	Changchun	Yang Zheng Zhaoxi Liu Wenqian Zhou Lin Zou	YZ ZXL WQZ LZ	Chief physician Resident doctor Resident doctor Resident doctor
26	The Fourth Affiliated Hospital of China Medical University	Liaoning	Shenyang	Yuanzhe Jin Xiaohong Zhang Xueying Zhang	YZJ XHZ XYZ	Chief physician Attending physician Attending physician
27	The People's Hospital of Liaoning Province	Liaoning	Shenyang	Zhanquan Li Ying Liu Qian Yu Yan Xing	ZQL YL QY YX	Chief physician Chief physician Attending physician Resident doctor
28	The Second Affiliated Hospital of Harbin Medical University	Heilongjiang	Harbin	Bo Yu	BY	Chief physician
29	The Affiliated Hospital of Xuzhou Medical University	Jiangsu	Xuzhou	Dongye Li Yuanyuan Luo Hong Zhu	DYL YYL HZ	Chief physician Chief physician Chief physician
30	The Second Affiliated Hospital of Xuzhou Medical College	Jiangsu	Xuzhou	Shuo Zhang Shuang Yang Jianqi Feng	SZ SY JQF	Chief physician Associate chief physician Associate chief physician
31	The Second Affiliated Hospital of Zhengzhou University	Henan	Zhennzhou	Xianen Fa Lihua Zhang Liqiang Sun Lei Liu	XNF LHZ LQS LL	Chief physician Chief physician Attending physician Resident doctor
32	The Second Hospital of Dalian Medical University	Liaoning	Dalian	Peng Qu Hongyan Wang Dayuan Lou Dajun Yuan	PQ HYW DYL DJY	Chief physician Associate chief physician Associate chief physician Associate chief physician
33	The First Affiliated Hospital of Zhengzhou University	Henan	Zhengzhou	Zhenwen Huang Lili Zhang	ZWH LLZ	Chief physician Resident doctor
34	Union Hospital, Tongji Medical College, Huazhong University of Science and Technology	Hubei	Wuhan	Nianguo Dong Yan Long Jiaxin Wei	NGD YL JXW	Chief physician Resident doctor Resident doctor
35	Wuhan Asia Heart Hospital	Hubei	Wuhan	Xi Su Songzhi Zhao Wei Wu Yujing Fan	XS SZZ WW YJF	Chief physician Attending physician Attending physician Resident doctor

	<b>Hospital</b>	<b>Province /Municipality</b>	<b>City</b>	<b>Staff</b>	<b>Initials</b>	<b>Title</b>
36	Xiangtan Central Hospital	Hunan	Xiangtan	He Huang Jianping Zeng Mingxing Wu Yi Zhou	HH JPZ MXW YZ	Chief physician Chief physician Associate chief physician Associate chief physician
37	Xuzhou Central Hospital	Jiangsu	Xuzhou	Qiang Fu Zhenyong Li Peng Wei Yi Lu	QF ZYL PW YL	Chief physician Associate chief physician Resident doctor Resident doctor
38	Xuzhou First People's Hospital	Jiangsu	Xuzhou	Hongju Zhang Liuxiao Jun Ming Hu Wei Li	HJZ LXJ MH WL	Chief physician Attending physician Nurse-in-Charge Nurse practitioner
39	Zhengzhou Central Hospital	Henan	Zhengzhou	Lin Zhang Yumei Guo Huiling Sun	LZ YMG HLS	Associate chief physician Associate chief physician Attending physician

**Table S1. Baseline characteristics of patients who completed 1-year assessment vs. those missing 1-year data.**

	Overall			Complete			Missing		
	Complete (n = 1702)	Missing (n = 535)	P-Value	Women (n=555)	Men (n=1147)	P-Value	Women (n = 192)	Men (n=343)	P-Value
<b>Socio-demographics</b>									
Age, mean (SD)	61.56(9.85)	64.49(10.21)	<.0001	63.98(8.9)	60.39(10.08)	<.0001	66.41(8.44)	63.41(10.94)	0.0004
Age, median (IQR)	62(55,69)	65(58,72)	<.0001	64(58,71)	61(53,68)	<.0001	68(60,73)	64(55,72)	0.0022
Married, n (%)	1551(91.1)	475(88.8)	0.1058	465(83.8)	1086(94.7)	0.0000	159(82.8)	316(92.1)	0.0011
Education (high school or higher education), n (%)	247(14.5)	65(12.1)	0.1688	32(5.8)	215(18.7)	0.0000	10(5.2)	55(16)	0.0002
Currently/ever work, n (%)	1472(86.5)	443(82.8)	0.0343	424(76.4)	1048(91.4)	0.0000	130(67.7)	313(91.3)	0.0000
Health insurance, n (%)			0.0147			0.0026			0.0279
Urban insurance	1201(70.6)	342(63.9)		363(65.4)	838(73.1)		110(57.3)	232(67.6)	
Rural cooperative medical service/None	499(29.3)	192(35.9)		192(34.6)	307(26.8)		81(42.2)	111(32.4)	
Unknown	2(0.1)	1 (0.2%)		0(0)	2(0.2)		1(0.5)	0(0)	
<b>Cardiac risk factors, n (%)</b>									
Hypertension	1170(68.7)	375(70.1)	0.5555	436(78.6)	734(64)	0.0000	162(84.4)	213(62.1)	0.0000
Diabetes	501(29.4)	170(31.8)	0.3029	200(36)	301(26.2)	0.0000	75(39.1)	95(27.7)	0.0068
Hyperlipidemia	856(50.3)	257(48)	0.3626	294(53)	562(49)	0.1241	107(55.7)	150(43.7)	0.0077
Current smoker	637(37.4)	191(35.7)	0.4709	36(6.5)	601(52.4)	0.0000	20(10.4)	171(49.9)	0.0000
BMI $\geq$ 24kg/m <sup>2</sup>	893(52.5)	240(44.9)	0.0021	295(53.2)	598(52.1)	0.6937	84(43.8)	156(45.5)	0.6994
Family history of CAD	192(11.3)	61(11.4)	0.9385	69(12.4)	123(10.7)	0.2962	22(11.5)	39(11.4)	0.9755

<b>Medical history, n (%)</b>									
Prior CAD	965(56.7)	313(58.5)	0.4614	309(55.7)	656(57.2)	0.5538	105(54.7)	208(60.6)	0.1800
Prior MI	267(15.7)	106(19.8)	0.0255	58(10.5)	209(18.2)	0.0000	28(14.6)	78(22.7)	0.0232
Prior PCI	279(16.4)	94(17.6)	0.5239	73(13.2)	206(18)	0.0120	26(13.5)	68(19.8)	0.0670
Prior CABG	12(0.7)	3(0.6)	0.7213	5(0.9)	7(0.6)	0.5018	0(0)	3(0.9)	0.1938
Prior stroke	251(14.7)	105(19.6)	0.0071	110(19.8)	141(12.3)	0.0000	41(21.4)	64(18.7)	0.4515
Congestive heart failure	599(35.2)	173(32.3)	0.2253	220(39.6)	379(33)	0.0076	59(30.7)	114(33.2)	0.5521
<b>Clinical characteristics at admission</b>									
eGFR, mean (SD)	80.65(19.11)	84.85(25.14)	0.0005	75.73(17.95)	83.02(19.21)	<.0001	80.92(22.99)	87.08(26.05)	0.0071
eGFR, median (IQR)	79.49 (69.32,91.01)	82.36 (69.27,95.57)	0.0113	75.46 (65.14,84.8)	81.56 (71.16,93.18)	<.0001	79.46 (66.86,92)	83.27 (70.98,97.45)	0.0084
Acute heart failure, n (%)	14(0.8)	3(0.6)	0.5430	5(0.9)	9(0.8)	0.8034	2(1)	1(0.3)	0.2651
Acute Stroke, n (%)	40(2.4)	13(2.4)	0.9158	15(2.7)	25(2.2)	0.5043	4(2.1)	9(2.6)	0.6969
Extent of CAD, n (%)			0.0033			0.5809			0.1289
1-vessel disease	765(44.9)	196(36.6)		236(42.5)	529(46.1)		70(36.5)	126(36.7)	
2-vessel disease	599(35.2)	204(38.1)		204(36.8)	395(34.4)		70(36.5)	134(39.1)	
3-vessel disease	326(19.2)	132(24.7)		111(20)	215(18.7)		49(25.5)	83(24.2)	
Non-obstructive	12(0.7)	3(0.6)		4(0.7)	8(0.7)		3(1.6)	0(0)	
LM disease	88(5.2)	31(5.8)	0.5748	26(4.7)	62(5.4)	0.5290	10(5.2)	21(6.1)	0.6642
<b>Treatments, n (%)</b>									
No. of vessels treated during PCI			0.0489			0.1852			0.6011
0-vessel	7(0.4)	5(0.9)		1(0.2)	6(0.5)		2(1)	3(0.9)	
1-vessel	1260(74)	400(74.8)		421(75.9)	839(73.1)		149(77.6)	251(73.2)	



2-vessel	410(24.1)	129(24.1)		129(23.2)	281(24.5)		41(21.4)	88(25.7)	
3-vessel	25(1.5)	1(0.2)		4(0.7)	21(1.8)		0(0)	1(0.3)	
Complete vs. incomplete revascularization			0.0019			0.3600			0.5330
Complete	170(10)	55(10.3)		56(10.1)	114(9.9)		23(12)	32(9.3)	
Incomplete	755(44.4)	281(52.5)		259(46.7)	496(43.2)		96(50)	185(53.9)	
Unknown	777(45.7)	199(37.2)		240(43.2)	537(46.8)		73(38)	126(36.7)	
Stent			0.7306			0.6474			0.2674
DES	1610(94.6)	504(94.2)		523(94.2)	1087(94.8)		178(92.7)	326(95)	
BMS	0.0(0.0)	0.0(0.0)		0.0(0.0)	0.0(0.0)		0.0(0.0)	0.0(0.0)	
Unknown	92(5.4)	31(5.8)		32(5.8)	60(5.2)		14(7.3)	17(5)	
Access site			0.9629			0.0469			0.0907
Radial	1531(90)	482(90.1)		501(90.3)	1030(89.8)		167(87)	315(91.8)	
Femoral	132(7.8)	40(7.5)		48(8.6)	84(7.3)		17(8.9)	23(6.7)	
Others	39(2.3)	13(2.4)		6(1.1)	33(2.9)		8(4.2)	5(1.5)	
<b>Medications during hospitalization, n (%)</b>									
Aspirin	1559(91.6)	487(91)	0.6806	510(91.9)	1049(91.5)	0.7612	179(93.2)	308(89.8)	0.1826
Clopidogrel/ Ticagrelor	1695(99.6)	531(99.3)	0.3319	554(99.8)	1141(99.5)	0.3001	190(99)	341(99.4)	0.5548
Statins	1679(98.6)	530(99.1)	0.4495	550(99.1)	1129(98.4)	0.2629	190(99)	340(99.1)	0.8473
Beta-blocker	1388(81.6)	418(78.1)	0.0802	461(83.1)	927(80.8)	0.2633	148(77.1)	270(78.7)	0.6610
ACEI/ARB	1080(63.5)	363(67.9)	0.0638	356(64.1)	724(63.1)	0.6812	130(67.7)	233(67.9)	0.9580
<b>In hospital complications, n (%)</b>									
Major bleeding	0(0)	1(0.2)	0.0744	23(4.1)	43(3.7)	0.6922	1(0.5)	0(0)	0.1810

Any bleeding	66(3.9)	22(4.1)	0.8078	1(0.2)	2(0.2)	0.9786	10(5.2)	12(3.5)	0.3394
Blood transfusion	3(0.2)	3(0.6)	0.1337	26(4.7)	37(3.2)	0.1351	2(1)	1(0.3)	0.2651
Stroke	63(3.7)	22(4.1)	0.6648	9(1.6)	13(1.1)	0.4032	10(5.2)	12(3.5)	0.3394
MI	22(1.3)	9(1.7)	0.5013	1(0.2)	9(0.8)	0.1261	4(2.1)	5(1.5)	0.5894
TVR	10(0.6)	5(0.9)	0.3909	0(0)	2(0.2)	0.3250	3(1.6)	2(0.6)	0.2588
CABG	2(0.1)	0(0)	0.4276	23(4.1)	43(3.7)	0.6922	1(0.5)	0(0)	0.1810
<b>Length of stay, mean (SD)</b>	10.24(5.21)	10(4.63)	0.3091	10.74(5.03)	9.99(5.28)	0.0055	10.38(4.88)	9.78(4.47)	0.1501
<b>Length of stay, median (IQR)</b>	9(7,12)	9(7,12)	0.4228	10(7,13)	9(7,12)	0.0003	9(7,13)	9(7,12)	0.1674

ACE-I= angiotensin-converting-enzyme inhibitor; ARB= angiotensin receptor blocker; BMI= body mass index; BMS: bare metal stent; CABG= coronary artery bypass grafting; CAD: coronary heart disease; DES: drug eluting stent; IQR= interquartile range; MI: myocardial infarction; PCI= percutaneous coronary intervention; SD= standard deviation; TVR: target vessel revascularization.