Cardiovascular Innovations and Applications

Vol. 8 (2023) 3
ISSN 2009-8618
DOI 10.15212/CVIA.2023.0017

RESEARCH ARTICLE

Sex Differences in Quality of Life and their Explanatory Variables in Patients with Non-Valvular Atrial Fibrillation

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Received: 11 December 2022; Revised: 20 March 2023; Accepted: 27 March 2023

Abstract

Background: Women with atrial fibrillation (AF) have poorer quality of life (QoL) than men; however, the factors contributing to the poorer QoL in women is unclear.
Methods: We analyzed data for 3562 patients with non-valvular AF enrolled in the China Registry of Atrial Fibrillation. The Medical Outcomes Study 36-item Short-Form Health Survey (SF-36) was used to evaluate QoL, which was compared between women and men. A multivariate logistic regression analysis model was used to explore factors potentially explaining the sex difference in QoL.
Results: Overall, 43.3% of the cohort comprised women (n = 1541) who were older than their male counterparts (72 ± 9.8 vs. 68 ± 11.9 years, P < 0.001). Compared with men, women were more likely to have more symptoms, hypertension, diabetes mellitus, and heart failure. Women were less likely than men to receive catheter ablation (4.5% vs. 6.1%, P = 0.044). Women also had lower physical component summary (PCS) scores (48 ± 9 vs. 51 ± 9, P < 0.001) and mental component summary (MCS) scores (49 ± 10 vs. 51 ± 10, P < 0.001) than men. In the multivariable analysis of the poorer PCS scores in women, patient age explained 32.9%, low socioeconomic status explained 20.0%, lifestyle explained 14.3%, cardiovascular comorbidities explained 15.7%, the presence of more symptoms explained 5.7%, and less catheter ablation explained 1.4%. These factors also explained similar proportions of the sex difference in MCS scores. Together, these factors explained 54.3% of the poorer physical function status and 46.8% of the poorer mental function status in women than men.
Conclusions: Women with AF had poorer QoL than men. The following factors partly explained the poorer QoL in women: older age, low level of socioeconomic status, more cardiovascular comorbidities, less smoking and drinking, more symptoms, and less catheter ablation.

Keywords: Atrial fibrillation; Sex; Quality of life; Risk factor

Introduction

Atrial fibrillation (AF) is a common cardiac arrhythmia that can contribute to adverse clinical outcomes and impaired quality of life (QoL) [1–3]. Although women have a lower incidence of AF, they usually experience higher risk of death

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and stroke than men [4–6]. Many studies have reported sex-related differences in prevalence, risk factors, and clinical outcomes of patients with AF. Women have also been found to have poorer QoL than men in both Eastern and Western populations [5, 7, 8]. However, few studies have explored the factors potentially explaining the sex difference in QoL. Treatment for AF, such as a strict rate control, electrical cardioversion, and catheter ablation, has also been demonstrated to be associated with QoL in patients with AF; however, the QoL remains lower in women than men after treatment [9, 10]. Given the rapid increase in the incidence of AF, particularly in China, understanding the factors potentially explaining the sex differences in QoL is critical to minimize or even eliminate the sex differences [11].

The China Registry of Atrial Fibrillation (CRAF) study was a nationwide cross-sectional study collecting information on clinical characteristics, treatments for AF, and QoL scales in unselected patients with AF in China. We aimed to investigate whether symptoms, treatment strategies, and QoL differ between women and men with AF, and to explore the factors potentially explaining this difference.

Methods

Study Population

The CRAF study was a multicenter, cross-sectional, observational study conducted in 111 hospitals, comprising 89 tertiary hospitals and 22 tier two hospitals, between July 2012 and December 2012. The design of the study has been described previously [12]. Briefly, the study used a simple random sampling method to generate a national sample of AF patients. Patients were included if they were older than 18 years and had an electrocardiogram-verified diagnosis of AF. The study was conducted according to the requirements of the Declaration of Helsinki, and approval was obtained from the ethics committees in Peking University People's hospital. Written informed consent was obtained from all participants in this study.

Data Collection

Demographic parameters, socioeconomic information, clinical characteristics, medical history, the date of confirmed AF diagnosis, AF-associated symptoms, AF type, antiarrhythmic treatment, antithrombotic treatment, and QoL questionnaire responses were collected. The risk of stroke or bleeding was evaluated for each individual patient [13].

Assessment of Quality of Life

At enrollment in the registry, the QoL was assessed with the Chinese version of the Medical Outcomes Study 36-item Short-Form Health Survey (SF-36) [14]. The questionnaire was self-reported by patients with the help of trained research assistants at each local center. The SF-36 questionnaire contains 36 items evaluating eight dimensions of health condition: physical function; role–physical or limited function in daily activities due to physical problems; bodily pain; general health; vitality; role–emotional or limited function in daily activities due to emotional problems; social function; and mental health. The eight domains were subsequently grouped into a physical component summary (PCS) and mental component summary (MCS). Each domain and component summary score ranged from 0 to 100, with higher scores indicating better QoL. The definition of low QoL was a PCS score less than 50 or MCS score less than 50, on the basis of a previous study [15].

Statistical Analysis

Continuous variables are presented as means ± standard deviation for normally distributed data and medians (25^{th} and 75^{th} percentiles) for non-normally distributed data. Categorical variables are expressed as frequencies and percentages. The differences between continuous variables were evaluated with the Student t-test or Mann-Whitney U test. Differences between categorical variables were estimated with the chi-square test or Fisher exact test. Multivariate logistic regression analysis was performed to calculate the odds ratio (OR) and corresponding 95% confidence interval (CI) for QoL. To understand the sex difference in QoL, we calculated the unadjusted OR as the base model, which included only sex as the independent variable. To understand the role of each variable in explaining the sex difference in QoL, we added each variable into the base model, observed the change in the OR by sex, and calculated the percentage of the sex-associated risk difference accounted for by each variable [(adjusted OR – unadjusted OR)/(unadjusted OR – 1.0) × 100%]. We included variables in the model to understand the extent to which the sex difference in QoL could be explained by all variables together. The variables included age (per 10 years), socioeconomic status (education level, marital status, living status, annual income, and type of medical insurance), lifestyle (current smoking and current drinking), cardiovascular comorbidities (hypertension, diabetes mellitus, heart failure, and systemic embolism), number of symptoms (0, 1, 2, and ≥3), and catheter ablation. We also analyzed the association of QoL with age (<75 or ≥75 years) or antiarrhythmic treatment strategy, stratified by sex. All statistical analyses were performed in SPSS version 25.0 (IBM Corporation, Chicago, IL, USA), and a two-tailed value of $P < 0.05$ was defined as statistically significant.

Results

Baseline Characteristics

Overall, 3562 patients with non-valvular AF (NVAF) were included in this analysis after exclusion of 599 patients with rheumatic heart disease or mechanic valve replacement (Figure 1). A total of 43.3% (1541) of the cohort comprised women. The clinical characteristics by sex are shown in Table 1. Compared with the men, the women were older (72 ± 9.8 years vs. 68 ± 11.9 years, $P < 0.001$) and had more cardiovascular comorbidities, including history of hypertension (64.8% vs. 59.5%, $P = 0.001$), diabetes mellitus (20.5% vs. 15.2%, $P < 0.001$), and heart failure (38.6% vs. 31.7%, $P < 0.001$). Women were less likely to have myocardial infarction (3.6% vs. 6.2%, $P < 0.001$) and chronic liver disease (2.7% vs. 4.8%, $P = 0.002$) than men. The education level was lower in women than men (86.4% vs. 73.3%, $P < 0.001$). Women were more likely to live alone (7.9% vs. 5.7%, $P = 0.010$) but less likely to be unmarried (0.8% vs. 1.6%, $P = 0.031$). The proportion of patients with low annual income was higher in women (58.7% vs. 49.8%, $P < 0.001$) than men. Women had higher median CHA_2DS_2-VASc scores (4 [2–5] vs. 2 [1–3], $P < 0.001$) than men. Although no significant difference was observed in HAS-BLED scores between sexes, compared with men, fewer woman had high bleeding risk (HAS-BLED scores ≥3; 15.2% vs. 18.7%, $P < 0.001$). No significant difference was observed in the types of AF between the sexes.

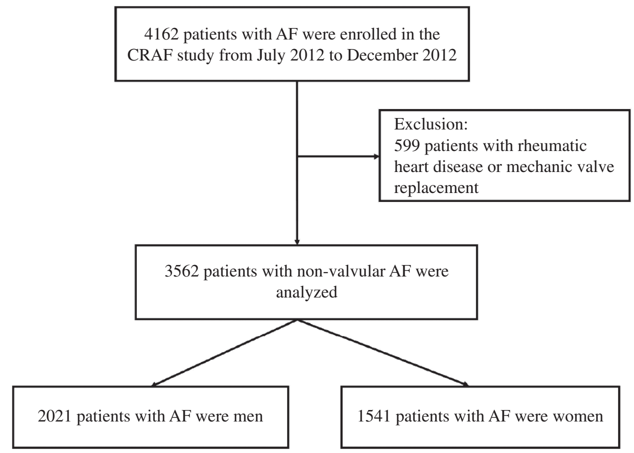

Figure 1 Flowchart of the Study.
AF, atrial fibrillation; CRAF, China registry of atrial fibrillation.

AF-Associated Symptoms between Men and Women

The AF-associated symptoms are presented in Figure 2. Compared with men, fewer women were asymptomatic (3.6% vs 5.4%, $P = 0.008$). Women were more likely than men to experience palpitations (74.0% vs. 68.7%, $P = 0.001$). No significant differences were observed in other symptoms, such as syncope, dizziness, dyspnea, fatigue, chest pain, and chest discomfort. Women were also more likely than men to experience at least three types of symptoms (32.3% vs. 28.8%, $P = 0.022$).

Management of AF between Men and Women

Overall, 32.6% (n = 1160) of the patients received rhythm control, and 53.3% (n = 1899) received rate control (Table 2). Women were more likely to receive rate control treatment (54.8% vs. 52.2%,

Table 1 Baseline Patient Characteristics, Stratified by Sex.

Variable	Overall (n = 3562)	Men (n = 2021)	Women (n = 1541)	P value
Age, years	69 ± 11.2	68 ± 11.9	72 ± 9.8	<0.001
Duration of AF, years	2.5 (0.4–5.9)	2.6 (0.4–5.9)	2.5 (0.4–5.9)	0.553
Education				
High school or less	2813 (79.0%)	1482 (73.3%)	1331 (86.4%)	<0.001
Marital status				
Unmarried	44 (1.2%)	32 (1.6%)	12 (0.8%)	0.031
Live Alone	238 (6.7%)	116 (5.7%)	122 (7.9%)	0.010
Annual income				<0.001
Low	1911 (53.6%)	1006 (49.8%)	905 (58.7%)	
Middle	1280 (35.9%)	758 (37.5%)	522 (33.9%)	
High	371 (10.4%)	257 (12.7%)	114 (7.4%)	
Type of medical insurance				<0.001
Basic medical insurance	3098 (87.0%)	1732 (85.7%)	1366 (88.6%)	
Business health insurance	256 (7.2%)	176 (8.7%)	80 (5.2%)	
None	208 (5.8%)	113 (5.6%)	95 (6.2%)	
Current smoking	383 (10.8%)	364 (18.0%)	19 (1.2%)	<0.001
Current drinking	276 (7.7%)	272 (13.5%)	4 (0.3%)	<0.001
BMI, kg/m^2	24.3 ± 3.5	24.4 ± 3.3	24.1 ± 3.6	0.003
SBP, mmHg	130 ± 18.0	130 ± 17.3	131 ± 18.9	0.295
DBP, mmHg	79 ± 11.6	79 ± 11.2	78 ± 12.0	0.001
Comorbidities				
Hypertension	2201 (61.8%)	1203 (59.5%)	998 (64.8%)	0.001
Diabetes mellitus	624 (17.5%)	308 (15.2%)	316 (20.5%)	<0.001
Dyslipidemia	772 (21.7%)	445 (22.0%)	327 (21.2%)	0.566
Prior MI	180 (5.1%)	125 (6.2%)	55 (3.6%)	<0.001
Heart failure	1235 (34.7%)	640 (31.7%)	595 (38.6%)	<0.001
Peripheral artery disease	161 (4.5%)	84 (4.2%)	77 (5.0%)	0.232
Ischemic stroke	526 (14.8%)	305 (15.1%)	221 (14.3%)	0.532
Non-CNS embolism	29 (0.8%)	12 (0.6%)	17 (1.1%)	0.094
Bleeding	233 (6.5%)	136 (6.7%)	97 (6.3%)	0.603
Chronic liver disease	139 (3.9%)	97 (4.8%)	42 (2.7%)	0.002
Chronic kidney disease	167 (4.7%)	102 (5.0%)	65 (4.2%)	0.246
AF type				0.052
New onset	471 (13.2%)	256 (12.7%)	215 (14.0%)	
Paroxysmal	1263 (35.5%)	690 (34.1%)	573 (37.2%)	
Persistent	1076 (30.2%)	644 (31.9%)	432 (28.0%)	
Permanent	752 (21.1%)	431 (21.3%)	321 (20.8%)	
CHA2DS2-VASc score	3 (2–4)	2 (1–3)	4 (2–5)	<0.001
HAS-BLED score	2 (1–2)	2 (1–2)	2 (1–2)	0.332

AF, atrial fibrillation; BMI, body mass index; SBP, systolic blood pressure; DBP, diastolic blood pressure; MI: myocardial ischemia; CNS, central nervous system.

CHA_2DS_2-VASc: cardiac failure or dysfunction, hypertension, 75 years of age or older (doubled), diabetes, stroke (doubled), vascular disease, 65–74 years of age, and sex category (female); HAS-BLED: hypertension if systolic blood pressure >160 mmHg, abnormal renal and liver function, stroke, bleeding, labile international normalized ratio, >65 years of age, and use of antiplatelet drugs or alcohol.

Continuous data are presented as means ± standard deviation (SD) or median (interquartile range) if appropriate, and categorical data are shown as n (%).

P values in this table were analyzed between women and men.

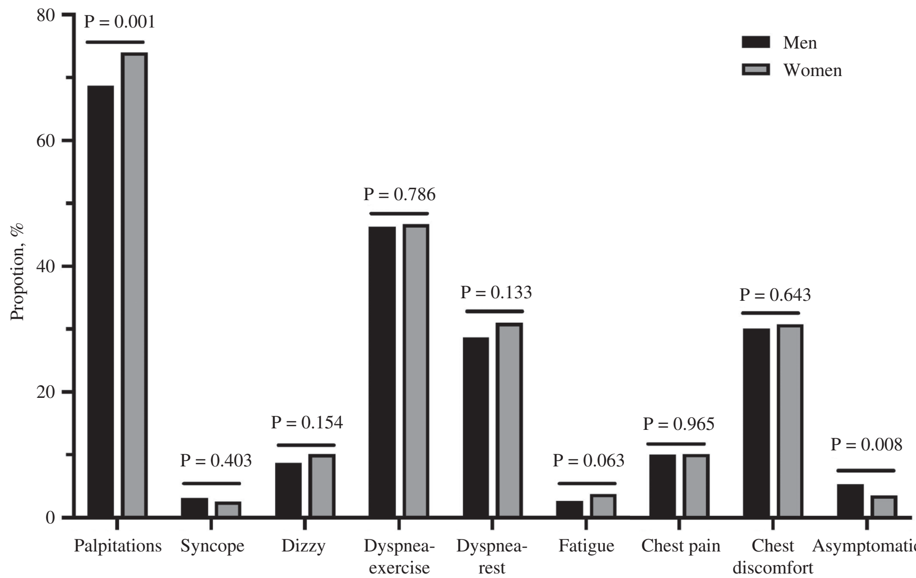

Figure 2 Symptoms Associated with AF between Women and Men.

Table 2 AF-Associated Treatment between Sexes.

Variable	Overall (n=3562)	Men (n=2021)	Women (n=1541)	P value
Antiarrhythmic treatment				0.025
Non-treatment	503 (14.1%)	313 (15.5%)	190 (12.3%)	
Rhythm control strategy	1160 (32.6%)	653 (32.3%)	507 (32.9%)	
Rate control strategy	1899 (53.3%)	1055 (52.2%)	844 (54.8%)	
Catheter ablation	193 (5.4%)	123 (6.1%)	70 (4.5%)	0.044
Current rhythm-control drugs				
Class Ic antiarrhythmic	125 (3.5%)	66 (3.3%)	59 (3.8%)	0.366
Amiodarone	550 (15.4%)	326 (16.1%)	224 (14.5%)	0.192
Current rate control drugs				
β-blocker	1826 (51.3%)	1014 (50.2%)	812 (52.7%)	0.136
Calcium-channel blocker	36 (1.0%)	14 (0.7%)	22 (1.4%)	0.030
Digoxin	737 (20.7%)	385 (19.0%)	352 (22.8%)	0.006
Antithrombotic treatment				0.803
Non-treatment	436 (12.2%)	241 (11.9%)	195 12.7%)	
Anticoagulant	952 (26.7%)	543 (26.9%)	409 (26.5%)	
Antiplatelet	2174 (61.0%)	1237 (61.2%)	937 (60.8%)	
Current antithrombotic drugs				
Warfarin	912 (25.6%)	521 (25.8%)	391 (25.4%)	0.783
Aspirin	2076 (58.3%)	1193 (59.0%)	883 (57.3%)	0.300
Clopidogrel	533 (15.0%)	315 (15.6%)	218 (14.1%)	0.233

Data are shown as n (%).
P values in this table were analyzed between women and men.

P = 0.025) than men. Of note, women were less likely to receive catheter ablation than men (4.5% vs. 6.1%, P = 0.044). No significant differences were observed in the use of class Ic antiarrhythmic medications (3.8% vs. 3.3%, P = 0.366) or amiodarone (14.5% vs. 16.1%, P = 0.192) between women and men. Women took digoxin (22.8% vs. 19.0%, P = 0.006) and calcium-channel blockers (1.4% vs.

0.7%, P = 0.030) for rate control more often than men. In terms of antithrombotic strategy, no significant differences were observed in treatment with antithrombotic medicines between women and men.

Comparison of QoL between Men and Women

Women had lower QoL scores than men (Figure 3). Both the PCS scores (48 ± 9 vs. 51 ± 9, P < 0.001) and MCS scores (49 ± 10 vs. 51 ± 10, P < 0.001) were lower in women than in men. Women also had consistently lower scores than men in all domains of SF-36 (Supplementary Table 1). The sex differences for QoL persisted when the analysis was restricted to patients <75 years or ≥75 years of age (Supplementary Table 2). No significant interaction was observed between age (<75 or ≥75 years) and sex in the risk of poor QoL (Supplementary Figure 1). The SF-36 scores were also lower in women than men among patients treated with a rhythm control strategy or rate control strategy (Supplementary Table 3).

Factors Explaining the Sex Differences in QoL

The results of the analysis of the association between sex and QoL are shown in Table 3. Women had both lower PCS scores (OR = 1.70; 95% CI, 1.49–1.95, P < 0.001) and lower MCS scores (OR = 1.47; 95% CI, 1.28–1.67, P < 0.001) than men. The variables accounting for the sex-associated risk differences were older age, lower socioeconomic status, lifestyle, cardiovascular comorbidities, presence of more symptoms, and less catheter ablation. After adjustment for all the above factors, the association was attenuated but remained statistically significant for both low PCS scores (OR= 1.32; 95% CI 1.13–1.54, P < 0.001) and low MCS scores (OR = 1.25; 95% CI, 1.08–1.45, P = 0.001).

Discussion

In this large nationwide registry study, we observed several major findings regarding sex differences in QoL in patients with NVAF. We confirmed that

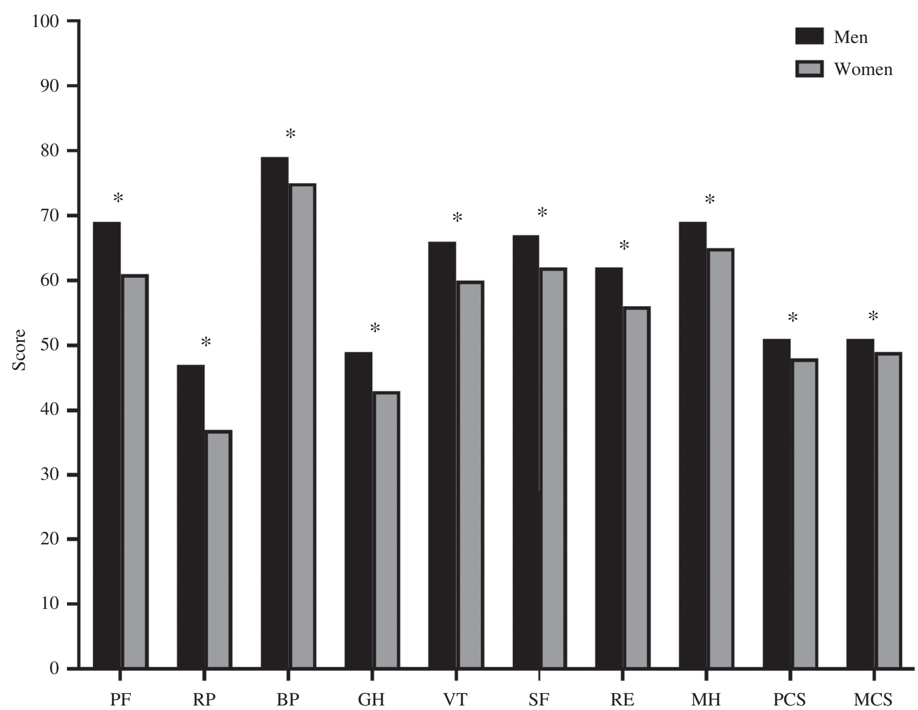

Figure 3 Quality of Life Scores According to Sex.
PF, physical function; RP, role–physical; BP, bodily pain; GH, general health; VT, vitality; RE, role–emotional; SF, social function; MH, mental health; PCS, physical component summary; MCS, mental component summary. *P value < 0.001 between women and men.

Table 3 Odds Ratios (ORs) for a Lower PCS Score or Lower MCS Score in Women than Men, with or without Adjustment for Variables; and Percentage of the Sex-Associated Risk Difference Accounted for by each Explanatory Variable.

Variables adjusted for	PCS			MCS		
	OR (95%CI)	P value	Percentage of difference accounted for	OR (95%CI)	P value	Percentage of difference accounted for
Base model: sex (reference = male)	1.70 (1.49–1.95)	<0.001		1.47 (1.28–1.67)	<0.001	
Age, per 10 years	1.47 (1.28–1.69)	<0.001	−32.9%	1.36 (1.19–1.56)	<0.001	−23.4%
Socioeconomic status	1.56 (1.36–1.79)	<0.001	−20.0%	1.37 (1.20–1.57)	<0.001	−21.2%
Lifestyle	1.60 (1.39–1.84)	<0.001	−14.3%	1.41 (1.23–1.63)	<0.001	−12.8%
Cardiovascular comorbidities	1.59 (1.38–1.84)	<0.001	−15.7%	1.41 (1.23–1.61)	<0.001	−12.8%
Number of symptoms	1.66 (1.45–1.90)	<0.001	−5.7%	1.42 (1.24–1.63)	<0.001	−10.6%
Catheter ablation	1.69 (1.48–1.94)	<0.001	−1.4%	1.45 (1.27–1.66)	<0.001	−4.3%
All the above	1.32 (1.13–1.54)	<0.001	−54.3%	1.25 (1.08–1.45)	0.003	−46.8%

PCS, physical component summary; MCS, mental component summary.
Socioeconomic status: high school or less, unmarried, living alone, annual income, and type of medical insurance.
Lifestyle: current smoking and current drinking.
Cardiovascular co-morbidities: hypertension, diabetes mellitus, heart failure, and non-central nervous system embolism.
Number of symptoms: 0, 1, 2, and ≥3.
Percentage of sex difference accounted for: (adjusted OR − unadjusted OR)/(unadjusted OR − 1.0) × 100%.
OR, odds ratio; CI, confidence interval.

women had poorer QoL than men as measured by both PCS and MCS scores. Moreover, we report the first clear evidence that sex differences in QoL are partly be explained by older age, more cardiovascular comorbidities, lower socioeconomic status, healthier lifestyle, presence of more symptoms, and less catheter ablation in women than men. Addressing the gap between sexes in patients with AF could provide clues to understanding mechanisms and management differences between women and men.

The evaluation of QoL is particularly important for patients with chronic disorders such as AF. QoL may be impaired by both the disease itself as well as the management of the disease. Several questionnaires have been used to measure generic QoL and other disease-specific symptoms, including SF-36, EuroQoL-5 Dimension (EQ-5D), University of Toronto AF Severity Scale (AFSS), Atrial fibrillation Quality of life (AF-QoL), and Atrial Fibrillation Effect on Quality of Life (AFEQT). Using SF-36, we confirmed that women with NVAF had poorer QoL than men, in agreement with findings from a previous study using different questionnaires [10]. An observation study including 1534 patients with AF has found that women have poorer QoL, according to the AFEQT questionnaire [7]. The European Heart Survey on Atrial Fibrillation study has indicated that women have lower QoL than men, as measured by the EQ-5D questionnaire [16]. Our findings demonstrated that both PCS scores and MCS scores were lower in women than in men. However, some studies have reported that women have significantly poorer PCS scores, but not MCS scores, than men [9, 17]. This finding may be partly explained by the different patient populations enrolled in those studies: one study enrolled patients with permanent AF, who were tolerant to AF episodes and had a better QoL than patients with new onset AF [18]. Another study enrolled highly selected AF patients who received catheter ablation [17]. Furthermore, the two studies enrolled a smaller sample of patients with AF (fewer than 650 patients in each study), whereas our study enrolled a larger cohort of unselected AF patients, 21.1% of whom had permanent AF. We observed a small but significant difference in PCS and MCS scores between women and men. Previous studies have also reported a significant difference (3 point gap) in PCS or MCS scores between women and men, thus indicating that a minimal gap can lead to clinically important differences [2, 10].

Factors accounting for the sex associated differences in QoL are unclear. Genetic, socioeconomic, and clinical factors have been proposed to have roles. First, the women with AF were older than the men with AF, thus potentially leading to poorer QoL [5, 7]. In the ORBIT-AF registry, 'women with AF' were 4 years older than 'men with AF' and had worse quality of care as well [5]. A multicenter study in 3128 patients with NVAF has found that older patients with AF have lower QoL than those of younger patients because women have more comorbidities, such as hypertension, and diabetes mellitus [19]. However, our study did not indicate an interaction between age and sex in influencing QoL. The Rate Control Efficacy in Permanent AF study has indicated that the number of AF risk factors is associated with diminished QoL [9]. Second, socioeconomic status had been identified as possible reason for the observed sex differences in QoL. Individuals with lower socioeconomic status, particularly those with lower income and lower educational level, may be less likely to receive disease treatment [20–22]. Third, some studies have found that smokers and drinkers have better QoL in the general population [23, 24], thus potentially explaining the sex difference between men and women in the AF population. We found that smokers and drinkers had fewer cardiovascular comorbidities; they might potentially have been sufficiently healthy that they did not need to worry about their health condition. Fourth, the sex differences in QoL may be associated with greater symptom burden in women than men. Women have been found to be more sensitive to disease and to have a lower threshold for reporting illness burden than men [25]. Finally, one study has found that patients with permanent AF are more tolerant of AF episodes and have a better QoL than patients with new-onset AF [18]. However, we did not find differences in the types of AF between sexes in our cohort.

One goal of AF management is to decrease symptom burden and improve QoL [26]. Providers should decide between rhythm control and rate control to reduce the burden of patients' symptoms. The CABANA trial has indicated that catheter ablation does not significantly decrease the primary composite endpoint of death, disabling stroke, serious bleeding, or cardiac arrest to a greater extent than medical therapy, but leads to a significant improvement in QoL [27]. The CAPTAF trial has also found that catheter ablation performs better than antiarrhythmic drugs alone in improving QoL in patients with AF [28]. Furthermore, one stratified pooled analysis of randomized data has indicated that catheter ablation significantly improves QoL in patients with AF and heart failure beyond that achieved with antiarrhythmic medications [29]. However, Gleason et al. have found that women have greater AF symptom severity and poorer QoL than men, regardless of whether patients receive rhythm control or rate control [30]. In our study, the lower rate of catheter ablation in women explained approximately 1.4% of the sex difference in low PCS scores and 4.3% of the sex difference in low MCS scores. Whether the early use of rhythm control for the treatment of AF might result in better QoL in women requires further evidence.

This study is by far the largest reporting QoL in Chinese patients with NVAF. However, several study limitations should be noted. First, this was an observational study, thus potentially leading to selection bias. However, patients were enrolled from 111 hospitals across China representing different geographic and economic regions. Second, some confounders, such as frailty, anxiety and depression, and cognitive function, were not measured in our study. Furthermore, data on the burden of AF were unavailable in our study. The correlation between AF burden and QoL manifested in patients with low AF burden. Third, the proportion of patients receiving catheter ablation was relatively low in this study. Although the use of catheter ablation for AF has rapidly increased in the past several decades [31], treatment strategies do not differ between sexes [10]. The sex difference was more pronounced if ablation did improve the QoL in patients with AF. Fourth, AF burden was not measured, because we did not collect data on disease-specific symptoms through a questionnaire such as AF-QoL or AFEQT. However, SF-36 is one of the most widely used measures of QoL and has been validated in patients with AF. SF-36 may be appropriate for QoL measurement in patients with comorbidities and persistent AF [32]. A prior study has indicated consistency between SF-36 and the disease-specific symptoms questionnaire [33]. Finally, we did not determine the European Heart Rhythm Association score, a widely accepted measure of functional status that is assessed from the physician's perspective.

Conclusions

Women with NVAF were older, more symptomatic, had more cardiovascular comorbidities, had lower socioeconomic status, engaged in less smoking and drinking, and were less likely to receive catheter ablation than men. Women also had poorer QoL than men. However, the sex difference in QoL was only partly explained by the above factors. Future studies are needed to explore the psychological and physical factors underlying these differences, to potentially provide suggestions to further diminish the sex differences in patients with AF.

Acknowledgements

None.

Data availability

The dataset analyzed during the current study is available from the corresponding author on reasonable request.

Funding

This study was supported by the Capital Health Research and Development of Special Fund (2020-2-4065) and National High Level Hospital Clinical Research Fund (2022-NHLHCRF-PY-19).

Conflict of interest

There are no conflicts of interest.

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Supplementary Material: Supplementary material for this paper can be found at the following link: https://cvia-journal.org/wp-content/uploads/2023/04/Supplement_Material_Sex-Differences-in-Quality-of-Life.pdf