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Original Article

Sex Differences in the Care Experiences of Patients Hospitalized Due to Ischemic Heart Disease in Alberta, Canada

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ABSTRACT

Background: Women with heart disease experience disparities in the diagnosis, treatment, and management of their condition. However, it is unknown whether these sex differences exist with respect to in-hospital patient experience. We examined the comprehensive experience of patients hospitalized due to ischemic heart disease (IHD) across Alberta, Canada, according to sex.

Methods: Patients completed a modified version of the Canadian Patient Experiences Survey—Inpatient Care (CPES-IC) within 6 weeks of discharge. We examined 37 questions, including 33 regarding specific care processes and 4 global rating scales. Survey responses were reported as raw "top-box" percentages, that is, the most-positive

RÉSUMÉ

Contexte : Les femmes atteintes de maladies cardiaques connaissent des disparités en matière de diagnostic, de traitement et de prise en charge de leur maladie. Cependant, on ignore si des différences entre les sexes existent en ce qui concerne l'expérience des patients à l'hôpital. Nous avons examiné l'expérience globale des patients hospitalisés en raison d'une cardiopathie ischémique en Alberta, au Canada, en fonction du sexe.

Méthodologie : Les patients ont rempli une version modifiée du Sondage sur les expériences d'hospitalisation des patients canadiens (SEHPC) dans les six semaines suivant leur congé. Nous avons examiné 37 questions, dont 33 concernaient des processus de soins

The Heart and Stroke Report entitled "Ms.Understood" identified that women's hearts are victims of a system that is not equipped to diagnose, treat, or manage their cardiac conditions.[1] Documented examples have included an incomplete clinical understanding of symptoms of myocardial infarction among women,[2-4] their lower rates of referral to[5] and attendance in[6,7] cardiac rehabilitation programs, and the higher 30-day mortality experienced by women following a major cardiovascular event.[8,9] Over the past decade, research has been conducted to better understand and narrow these gaps. Indeed, progress has been made, but disparities persist.

With the emergence of patient experience as an important indicator of quality of care under the "triple aim framework,"[10] many healthcare systems now include patient-reported experience measures as part of a suite of key performance indicators. Recently, the Canadian Women's Heart Health Alliance highlighted that the experiences of women living with cardiovascular disease are poorly understood.[11] Although many studies have reported on sex and gender differences in outcomes such as readmission to the hospital, morbidity, quality of life, and mortality,[12-17] whether these sex and/or gender differences extend to the experiences of patients who are hospitalized due to cardiovascular concerns is largely unknown.

The association between inpatient experience and sex has been examined in a handful of studies. Using data from the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS)[18] survey conducted at 3830 American hospitals, Elliott et al. showed that women had fewer positive

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Ethics Statement: Ethics approval was obtained from the University of Calgary Conjoint Health Research Ethics Board. A waiver of consent was granted due to the retrospective nature of the study.

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answer choice to each question. Odds and corresponding 95% confidence intervals of women reporting a top-box response were then calculated for each question, while controlling for demographic and clinical factors.

Results: From April 2014 to March 2020, a total of 5795 surveys (1612 women, 4183 men) were completed. Taking the survey margin of error into account, women had lower top-box percentages on 26 of 37 questions. Similar results were obtained for the adjusted odds of reporting a top-box response. Women did not have a higher percentage of top-box responses on any of the questions studied.

Conclusions: This study is a Canadian first, which stratified the experiences of hospitalized patients living with ischemic heart disease according to sex. Our results highlighted important sex differences. Future research to understand the mechanisms associated with these observed sex differences in patient-reported experiences is warranted.

spécifiques, et quatre échelles d'évaluation globale. Les réponses au sondage ont été rapportées sous forme de pourcentages bruts de personnes ayant sélectionné la réponse la plus positive à chaque question. Les rapports de cotes et les intervalles de confiance à 95 % correspondants des femmes ayant sélectionné la réponse la plus positive ont ensuite été calculés pour chaque question, après prise en compte des facteurs démographiques et cliniques.

Résultats : D'avril 2014 à mars 2020, un total de 5 795 sondages (1 612 femmes, 4 183 hommes) ont été remplis. Si l'on tient compte de la marge d'erreur du sondage, la proportion de femmes ayant sélectionné la réponse la plus positive est plus faible pour 26 des 37 questions. Des résultats similaires ont été obtenus pour les rapports de cotes ajustés de la sélection de la réponse la plus positive. Les femmes n'ont eu un pourcentage plus élevé de réponse la plus positive pour aucune des questions étudiées.

Conclusions : Cette étude, pour laquelle on a stratifié par sexe les expériences des patients hospitalisés atteints de cardiopathie ischémique, est une première au Canada. Nos résultats ont mis en évidence d'importantes différences entre les sexes. Des recherches futures sont justifiées pour comprendre les mécanismes associés à ces différences observées entre les sexes dans les expériences signalées par les patients.

experiences with care, particularly in regard to communication about medicines, discharge information, and cleanliness of the hospital room/bathroom.[19] Similarly, in 2014, Hausmann et al. found that female patients had fewer positive experiences than their male counterparts within 10 of 13 care domains at US Veterans Affairs (VA) hospitals.[20] These findings were congruent with those from a study conducted by Wright et al. a decade earlier.[21] Although these 3 studies examined the inpatient setting, they included all patients and were not limited to those receiving cardiac care. More recently, Okunrintemi et al. studied the patient-reported outcomes (including healthcare satisfaction) of US adults with atherosclerotic cardiovascular disease over a 10-year period.[22] Using data from the Medical Expenditure Panel Survey, the authors showed that women were more likely to report a poorer patient experience, lower health-related quality of life, and a poorer perception of their health, compared with men.

To date, no studies have been conducted to show whether these sex-based findings extend to a Canadian cardiovascular cohort. Therefore, we examined the comprehensive experience of patients hospitalized due to ischemic heart disease (IHD) across Alberta, according to sex.

Methods

We conducted a quantitative study using a validated survey to explore the sex-specific experiences of Albertans who were hospitalized due to IHD. Survey data from 93 hospitals were linked with clinical data routinely captured in the Canadian Institute for Health Information (CIHI) Discharge Abstract Database (DAD).[23] Sex was one of the data elements captured from the DAD. Ethics approval was obtained from the University of Calgary Conjoint Health Research Ethics Board. A waiver of consent was granted due to the retrospective nature of the study. All necessary data were provided by Alberta Health Services (AHS), per a research agreement between the research team and the health authority.

Participants and procedures

From April 2014 to March 2020, a random sample of patients completed a modified version of the Canadian Patient Experiences Survey—Inpatient Care (CPES-IC). The CPES-IC was developed by the CIHI in conjunction with various healthcare system partners.[24,25] The CPES-IC was based on the HCAHPS, with additional items developed to reflect the Canadian context. As a valid measure of inpatient hospital experience, the CPES-IC has been used in 7 Canadian provinces. A modified, 56-question survey has been administered across Alberta by AHS on a continuous basis since April 2014. Eligible adult patients (aged 18 years or older at the time of hospital discharge)[26] were randomly sampled and completed the survey by telephone within 6 weeks of their discharge from the hospital. Quota-based sampling was used by AHS to obtain a minimum number of responses in each quarter. Every 3 months, 10% of eligible discharges were sampled from the larger hospitals across the province, and a minimum of 12 completed surveys were obtained from the smaller, rural hospitals. Each year, approximately 25,000 surveys were completed across the province (not limited to cardiac patients).

The CPES-IC asked respondents about multiple aspects of their hospital care. This included admission to the hospital, care in the emergency department (if applicable), care from nurses, care from doctors, the hospital environment, pain control and medications, other processes of care, hospital discharge, and concerns with care. Unlike with the HCAHPS, at the time of writing of this article, no formal CPES-IC domains have been created. Responses to the majority of questions were Likert-type responses (eg, always, usually, sometimes, never), and the most-positive answer choice for each question (eg, always) was referred to as a "top-box" response. Three items on the survey asked respondents to provide numerical ratings of their overall care, overall experience, and the extent to which their hospital stay helped

them. Responses to these items were on a scale from zero (worse possible score) to 10 (best possible score). The top-box score for these numerical rating questions was a score of 9 or 10, used is in conjunction with the "net promoter score"—a metric designed to assess consumer loyalty.[27] Top-box reporting is an accepted and widely used method for reporting CPES-IC[28] and HCAHPS[29] results, with the aim of attaining a top-box response for quality-improvement purposes. The CPES-IC survey concluded with a demographic section, which asked respondents about their age, highest level of education, and self-reported levels of physical and mental health (eg, excellent, very good, good, fair, poor) at the time of survey completion. The standard CPES-IC survey is publicly available on the CIHI website.[30]

Clinical information obtained from the DAD was routinely captured for all inpatient hospital stays across Alberta. Completed CPES-IC surveys were linked with each corresponding inpatient record using exact matches of personal health number, 5-digit hospital code, and discharge date. As part of the DAD, up to 25 clinical diagnoses were coded according to the International Statistical Classification of Diseases and Related Health Problems, tenth revision, Canadian version (ICD-10-CA).[31] Any matched records with a most-responsible diagnosis of I20 through I25 were included in this study. This included I20 (angina pectoris), I21 (acute myocardial infarction), I22 (subsequent myocardial infarction), I23 (certain current complications following acute myocardial infarction), I24 (other acute ischemic heart diseases), or I25 (chronic ischemic heart disease). The most-responsible diagnosis was used, as it is the one diagnosis/condition primarily responsible for the patient being in the hospital.[23] IHD was selected as the focus for this study, as it is a well-defined, high-volume cohort, and has been identified as a leading cause of cardiovascular death among Canadian women.[32]

Table 1. Demographic and clinical characteristics (N = 5795 unless otherwise stated)

Variable	Women, n (%)	Men, n (%)	*P*
Age group, y			
18–50	123 (7.6)	480 (11.5)	< 0.01
51–64	522 (32.4)	1723 (41.4)	
65–74	488 (30.3)	1244 (29.7)	
≥ 75	479 (29.7)	727 (17.4)	
Education level (N = 5603)			
High school or less	831 (53.6)	1917 (47.3)	< 0.01
College or undergraduate university	625 (40.3)	1677 (41.4)	
Postgraduate/professional degree	95 (6.1)	458 (11.3)	
Hospital type			
Cardiac surgery centre	556 (34.5)	1869 (44.7)	< 0.01
Other large urban/regional	792 (49.1)	1862 (44.5)	
Rural	264 (16.4)	452 (10.8)	
Admission type			
Urgent	1510 (93.7)	3721 (89.0)	< 0.01
Elective	102 (6.3)	462 (11.0)	
Surgical intervention(s)			
Yes	725 (45.0)	2523 (60.3)	< 0.01
No	887 (55.0)	1660 (39.7)	
Length of hospital stay, d			
< 3	307 (19.0)	851 (20.3)	0.54
3–7	949 (58.9)	2417 (57.8)	
> 7	356 (22.1)	915 (21.9)	
Discharge disposition			
Home (with or without support)	1407 (87.3)	3562 (85.2)	0.04
Other	205 (12.7)	621 (14.9)	
Self-reported physical health (N = 5724)			
Excellent/very good	488 (30.7)	1537 (37.2)	< 0.01
Good	599 (37.7)	1532 (37.1)	
Fair/poor	504 (31.7)	1064 (25.7)	
Self-reported mental health (N = 5766)			
Excellent/very good	865 (54.0)	2539 (61.0)	< 0.01
Good	515 (32.2)	1192 (28.6)	
Fair/poor	221 (13.8)	434 (10.4)	

Analysis

In this study, we examined the results from 37 survey questions. This included 33 questions about individual care processes and 4 global rating questions—the 3 overall ratings described earlier, and a question about the patients' willingness to recommend the hospital to family members and/or friends. The 19 items not analyzed as part of this study consisted of screener questions, questions not part of the standard CPES-IC instrument, open-ended questions, and demographic questions used as predictor variables (see below). Results from each question were reported as percentage that were top-box, according to sex (male vs female). The list of questions we studied, their wording as read verbatim to respondents, and the corresponding top-box response for each is provided in Supplemental Table S1.

In reporting raw (ie, unadjusted) results, corresponding 95% confidence intervals (CIs) were included, as calculated from the survey margin of error.[33] The CIs from each question were used to assess whether any differences observed between women and men were statistically significant. When the CIs for women vs men did not overlap, the difference was deemed significant.

Multivariate logistic regression was used to report the adjusted odds of women giving a top-box response to each survey question, as compared men. Analyses controlled for selected demographic and clinical characteristics obtained from the surveys and clinical records. Demographic variables included age group (18-50 years, 51-64 years, 65-74 years, ≥ 75 years), education level (high school or less, college or undergraduate university, postgraduate/professional degree), and self-reported physical and mental health (each classified as excellent/very good, good, fair/poor). Clinical variables included hospital type (cardiac surgery centre, other large urban/regional, rural), admission type (urgent, elective), whether the patient underwent surgery (yes, no), and discharge disposition (discharged home with/without support services, other). Adjusted odds ratios and corresponding 95% CIs were reported. A CI not containing the value of 1.0 was deemed to be a significant result. All analyses were performed using SAS statistical software version 9.4 (Cary, NC) for Windows.

Results

Over a 6-year period from April 2014 to March 2020, a total of 5795 surveys from eligible patients were obtained and linked with clinical data. This sample included 1612 women and 4183 men. Demographic and clinical characteristics are

Table 2. Percentage with a "top-box" response (ie, the most-positive answer choice to a question), according to sex

Survey item	Top-box response	Women		Men		Difference (men−women)
		n	% (95% CI)	n	% (95% CI)	
Global ratings						
Overall rating of care	9 or 10	1608	72.0 (69.8−−74.2)	4173	75.5 (74.2−76.8)	3.5
Recommendation of hospital	Definitely yes	1595	78.6 (76.6−80.6)	4138	84.5 (83.4−85.6)	**5.9**
Helped by hospital stay	9 or 10	1607	81.6 (79.7−83.5)	4161	82.8 (81.7−83.9)	1.2
Overall hospital experience	9 or 10	1605	75.5 (73.4−77.6)	4163	77.5 (76.2−78.8)	2.0
Admission to hospital						
Information about admission	Completely	445	45.8 (41.2−50.4)	1301	56.4 (53.7−59.1)	**10.6**
Admission was organized	Completely	490	81.0 (77.5−84.5)	1373	84.2 (82.3−86.1)	3.2
Care in emergency department						
Information about treatment	Completely	996	54.4 (51.3−57.5)	2571	62.6 (60.7−64.5)	**8.2**
Information about admission	Completely	1018	55.6 (52.5−58.7)	2608	62.3 (60.4−64.2)	**6.7**
Waited long to be admitted	No	1043	82.7 (80.4−85.0)	2671	84.8 (83.4−86.2)	2.1
Admission was organized	Completely	1034	81.5 (79.1−83.9)	2662	83.5 (82.1−84.9)	2.0
Care from nurses						
Courtesy and respect	Always	1608	89.0 (87.5−90.5)	4174	93.0 (92.2−93.8)	**4.0**
Listening carefully	Always	1608	77.2 (75.1−79.3)	4174	83.5 (82.4−84.6)	**6.3**
Explanations to patient	Always	1607	77.8 (75.8−79.8)	4167	81.8 (80.6−83.0)	**4.0**
Call-button assistance	Always	1105	70.5 (67.8−73.2)	2434	76.5 (74.8−78.2)	**6.0**
Timely bathroom assistance	Always	793	71.0 (67.8−74.2)	1407	76.8 (74.6−79.0)	**5.8**
Care from doctors						
Courtesy and respect	Always	1606	85.7 (84.0−87.4)	4149	86.5 (85.5−87.5)	0.8
Listening carefully	Always	1595	74.7 (72.6−76.8)	4137	80.5 (79.3−81.7)	**5.8**
Explanations to patient	Always	1595	72.7 (70.5−74.9)	4151	77.1 (75.8−78.4)	**4.4**
The hospital environment						
Room cleanliness	Always	1588	60.1 (57.7−62.5)	4134	71.4 (70.0−72.8)	**11.3**
Room quietness	Always	1598	51.8 (49.4−54.2)	4160	51.5 (50.0−53.0)	−0.3
Pain control and medications						
Pain controlled	Always	950	65.3 (62.3−68.3)	2351	70.3 (68.5−72.1)	**5.0**
Staff helped with pain	Always	947	80.6 (78.1−83.1)	2358	84.9 (83.5−86.3)	**4.3**
Purpose of new medications	Always	1236	72.0 (69.5−74.5)	3223	80.2 (78.8−81.6)	**8.2**
Side effects of new medications	Always	1202	43.2 (40.4−46.0)	3156	56.4 (54.7−58.1)	**13.2**
Other processes of care						
Communication between staff	Always	1598	67.7 (65.4−70.0)	4139	75.1 (73.8−76.4)	**7.4**
Staff informed/up to date	Always	1585	66.3 (64.0−68.6)	4145	72.7 (71.3−74.1)	**6.4**
Tests/procedures done on time	Always	1446	76.0 (73.8−78.2)	3846	78.9 (77.6−80.2)	2.9
Information about condition/ treatment	Always	1598	71.0 (68.8−73.2)	4166	77.8 (76.5−79.1)	**6.8**
Support for anxieties/worries/fears	Always	1253	63.1 (60.4−65.8)	3060	71.9 (70.3−73.5)	**8.8**
Patient involvement in care	Always	1582	67.0 (64.7−69.3)	4108	70.4 (69.0−71.8)	3.4
Family/friend involvement in care	Always	1349	73.8 (71.5−76.1)	3370	76.1 (74.7−77.5)	2.3
Hospital discharge						
Help needed after discharge	Yes	1367	76.5 (74.3−78.7)	3512	88.2 (87.1−89.3)	**11.7**
Received written discharge information	Yes	1370	79.8 (77.7−81.9)	3513	87.9 (86.8−89.0)	**8.1**
Understanding of medications	Completely	1521	74.0 (71.8−76.2)	3946	79.8 (78.5−81.1)	**5.8**
Information about postdischarge worries	Completely	1568	66.3 (64.0−68.6)	4087	74.5 (73.2−75.8)	**8.2**
Better understanding of condition	Completely	1591	66.4 (64.1−68.7)	4128	73.0 (71.6−74.4)	**6.6**
Concerns with care						
Patient had concern(s)	No	1605	83.2 (81.4−85.0)	4174	86.4 (85.4−87.4)	**3.2**

Bold indicates statistically significant difference.
CI, confidence interval.

presented according to sex in Table 1. Compared with men, female respondents tended to be younger ($P < 0.01$), have a lower level of educational attainment ($P < 0.01$), and report poorer physical ($P < 0.01$) and mental health ($P < 0.01$). From a clinical perspective, women were more likely to have been admitted urgently ($P < 0.01$), presented less frequently to a surgical centre ($P < 0.01$), underwent surgery less frequently ($P < 0.01$), and were more likely to have been discharged home (with or without support services; $P = 0.04$). No differences in length of stay were observed between female and male respondents ($P = 0.54$).

Table 2 presents the percentage of responses to each question that were classified as top-box, for both women and men. Taking the survey margin of error into account, women had lower top-box percentages on 26 of 37 questions studied. For the global rating questions, women reported that they would "definitely recommend" the hospital to family members/friends less frequently (78.6% vs 84.5%) than did men. On questions pertaining to specific care processes, the largest sex-based differences pertained to being told about possible side effects of new medications (43.2% of women vs 56.4% of men responded "always"), discussing help needed after discharge (76.5% of women vs 88.2% of men responded "yes"), and cleanliness of the hospital room/bathroom (60.1% of women vs 71.4% of men responded "always"). Women did not have a higher

Table 3. Adjusted odds of women reporting a "top-box" response (ie, the most-positive answer choice to a question)

Survey item	aOR (95% CI)
Global ratings	
Overall rating of care	**0.86 (0.75−0.99)**
Recommendation of hospital	**0.75 (0.64−0.87)**
Helped by hospital stay	1.08 (0.92−1.08)
Overall hospital experience	0.96 (0.83−1.11)
Admission to hospital	
Information about admission	**0.76 (0.60−0.96)**
Admission was organized	0.84 (0.63−1.13)
Care in emergency department	
Information about treatment	**0.72 (0.61−0.85)**
Information about admission	**0.81 (0.69−0.95)**
Waited long to be admitted	0.90 (0.73−1.11)
Admission was organized	0.87 (0.72−1.07)
Care from nurses	
Courtesy and respect	**0.65 (0.53−0.81)**
Listening carefully	**0.66 (0.57−0.77)**
Explanations to patient	**0.81 (0.70−0.94)**
Call button assistance	**0.71 (0.60−0.84)**
Timely bathroom assistance	**0.73 (0.53−0.91)**
Care from doctors	
Courtesy and respect	0.92 (0.78−1.10)
Listening carefully	**0.74 (0.64−0.85)**
Explanation to patient	**0.83 (0.72−0.96)**
Hospital environment	
Room cleanliness	**0.56 (0.49−0.64)**
Room quietness	0.93 (0.82−1.06)
Pain control and medications	
Pain controlled	**0.84 (0.70−0.99)**
Staff helped with pain	**0.75 (0.61−0.93)**
Purpose of new medications	**0.66 (0.56−0.77)**
Side effects of new medications	**0.58 (0.51−0.67)**
Processes of care	
Communication between staff	**0.71 (0.62−0.81)**
Staff informed/up to date	**0.79 (0.69−0.90)**
Tests/procedures done on time	0.89 (0.76−1.03)
Information about condition/treatment	**0.74 (0.65−0.85)**
Support for anxieties/worries/fears	**0.68 (0.59−0.79)**
Patient involvement in care	0.89 (0.78−1.01)
Family/friend involvement in care	0.90 (0.77−1.05)
Hospital discharge	
Help needed after discharge	**0.52 (0.43−0.61)**
Received written discharge information	**0.73 (0.61−0.87)**
Understanding of medications	**0.74 (0.64−0.86)**
Information about postdischarge worries	**0.73 (0.64−0.84)**
Better understanding of condition	**0.78 (0.68−0.89)**
Concerns with care	
Patient had concern(s)	**0.69 (0.58−0.82)**

All models used men as the reference group while controlling for age group, education level, hospital type, admission type, surgery (yes/no), discharge disposition, and self-reported physical and mental health. Statistically significant results are shown in bold.

aOR, adjusted odds ratio; CI, confidence interval.

percentage of top-box responses on any of the questions we studied.

Results from the logistic regression analyses are presented in Table 3. Similar to differences found in the descriptive results, women were less likely than their male counterparts to report a top-box score on 2 global rating questions and 25 processes-of-care questions. Women were less likely to report an overall rating of care of 9 or 10 [adjusted odds ratio (aOR) = 0.86, 95% CI: 0.75-0.99), and they were less likely to "definitely recommend" the hospital to family members/friends (aOR = 0.75, 95% CI: 0.64-0.87). For the questions about specific care processes, women were significantly less likely to report a top-box response when responding to questions regarding having discussions about help needed after discharge (aOR = 0.53, 95% CI: 0.42-0.61), hospital room cleanliness (aOR = 0.56, 95% CI: 0.49-0.64), and being told about the possible side effects of new medications (aOR = 0.58, 95% CI: 0.51-0.67). Women did not report greater odds of reporting a top-box response on any of the questions studied.

Discussion

Improving patients' experiences with care is one of the 3 elements of the Institute for Healthcare Improvement triple-aim framework.[10] Although they are not the only method for measuring experiences with care, surveys such as the CPES-IC provide a feasible avenue for patients to inform quality-improvement efforts. Additionally, linking surveys with other administrative data sources can allow for a deeper look at the experiences of specific clinical or demographic groups. In this paper, we examined sex differences in the comprehensive experiences of Albertans hospitalized due to IHD. Over the 6-year period, women highlighted many perceived strengths, as well as opportunities for improvement in the care they received. Globally, women reported positive care experiences, with 81.6% responding 9 or 10 (from 0 to 10, with 10 being best) on how their hospital stay helped them. With respect to interactions with staff, 89.0% of women reported that nurses always treated them with courtesy and respect, and 85.7% responded in a similar fashion regarding doctors. Of those who received care in an emergency department prior to their admission, approximately 4 of 5 women reported that their admission to the hospital was completely organized, and that they did not wait long to be admitted. Women also had top-box ratings for items pertaining to staff providing help with pain (80.6% responded "always"), and concerns with care (83.2% had no concerns). However, women also identified several potential areas for improvement. Most notably, these included not always being told about the possible side effects of new medications, a lack of information about their admission to the hospital, help required upon discharge, and the noisy environment during nights in the hospital.

When compared with men, women reported lower top-box results on over 60% of the items studied. This difference was observed not only in the raw percentages, but also in comparison of the odds of reporting a top-box score, while controlling for a variety of clinical and demographic factors. The results observed in this study also highlight the importance of examining experiences with multiple aspects of care, rather than obtaining just an overall assessment (eg, numerical rating) of experience. In our study, there were no statistically significant differences between the sexes in the overall rating of experience. However, many processes of care, including aspects of communication, information exchange, and discharge planning, differed according to sex.

The present study adds to work that has been conducted to describe the experiences of women within the healthcare system. To improve aspects of the patient experience, however, it is important to understand that expectations around one's care, the importance placed upon individual aspects of

care (eg, room cleanliness, discharge planning), and the desired style of interaction between patient and provider may differ according to sex. In short, women and men may value different things. In a 2016 study of more than 4000 patients, Teunissen et al. demonstrated that women not only rated their hospital and nurse behaviours more negatively, but also had a greater desire for privacy and experienced pain more frequently than their male counterparts.[34] Similarly, Otani et al. demonstrated that men and women may place varying importance on their relationship with providers in determining their overall satisfaction with their care.[35] These authors found that women tended to rate their experience with nurses as more important to their rating of overall satisfaction, whereas men rated their experience with doctors as having greater importance.

Additionally, differences in the sex/gender of healthcare providers have been highlighted as a factor that may impact patients' evaluations of their care. A recent study in an outpatient setting found that female healthcare providers were more likely to be perceived as having communal traits such as empathy, warmth, and consensus-building.[36] Another study that examined patient preferences in primary care providers demonstrated that both male and female patients preferred to see a same-sex care provider, although this preference was more pronounced in men.[37] In the CPES-IC survey used in our own study, respondents are asked to base their responses on all nurses and doctors with whom they interacted during their hospitalization. We also did not have access to each patient's care team composition, so we were unable to assess provider characteristics. Future study may be worthwhile to examine these points as a means of improving patient-reported experience.

In the recently published Lancet Women and Cardiovascular Disease Commission, Vogel et al. note that despite the recognized influence of sex and gender factors on women's heart health, there has been a "confounding stagnation in the overall reduction of cardiovascular disease burden for women."[38] More importantly, they note that distinct strategies are urgently needed to tackle inequities and advance solutions regarding sex-specific differences in outcomes. Our own work has identified that gender roles (eg, providing unpaid care such as caring for children, older parents, or other members of the family) restrict women in their practice of self-care and contribute to worse outcomes.[17] Addressing patient-reported experiences through a sex and gender lens, such as ensuring women receive discharge planning (help needed after discharge, understanding discharge medications, and information about postdischarge worries) that accommodates the sociocultural factors in their lives may begin to address disparities in cardiovascular care and improve the cardiovascular health of women.

The study had several methodological strengths. The CPES-IC has been developed as a valid and reliable measure for assessing the experiences of hospitalized Canadians. A standard script and quality-assurance checks were used to ensure that each survey was administered in a standardized way. Prospective respondents were randomly sampled and provided with multiple opportunities to respond at varying times and days throughout the week. Contact was made using information verified by AHS at the time of hospital admission, which included both landline and cellular telephone numbers. The study was conducted with minimal cost, by capitalizing on existing data infrastructure and analytic expertise. Finally, as AHS provides all inpatient hospital care across Alberta, our study findings may be applied provincially.

Our study has some notable limitations. We were not able to control for disease severity. Previous work has shown that women routinely wait longer to seek cardiac care, and thus may be diagnosed later, with increased severity of illness. A future study linking patient experience data to other clinical variables/timepoints as well as patient-reported outcome measures, such as the Seattle Angina Questionnaire,[39] the EuroQol 5-dimension instrument,[40] and the 12-item short-form health survey,[41] could allow for an exploration of administrative and patient-reported measures of severity and their relation to sex-specific experiences. As an example, Anderson et al. recently demonstrated that greater patient satisfaction was correlated with lower mortality at 6 months postdischarge in a sample of 327 cardiac patients.[42]

Additional limitations of our study stem from the survey protocol itself. The CPES-IC in Alberta is administered exclusively by telephone. Therefore, our results may differ from those of a postal or e-mail survey. As with all surveys, there is the potential for bias relating to the CPES-IC's 42-day recall period. However, we feel such bias to be of minimal concern given the testing and widespread use of surveys such as the CPES-IC and the HCAHPS.[43] Finally, all surveys were conducted in English, and with patients only, as the survey has not undergone validation with proxy respondents (eg, loved ones, friends). Thus, this approach precluded participation by any non−English-speaking patients, as well as those unable to communicate by telephone.

Conclusions

This study is one of the first to stratify inpatient experiences by sex. Our findings suggest that the inequities experienced by women with IHD may be reflected in their experiences of inpatient care. Future research as a means to understand sex differences in patient-reported inpatient hospital experiences is warranted.

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Supplementary Material

To access the supplementary material accompanying this article, visit *CJC Open* at https://www.cjcopen.ca/ and at https://doi.org/10.1016/j.cjco.2021.08.011.