

# Change over time in patient-reported symptoms and quality of life in Edmonton interdisciplinary menopause clinics: preliminary cohort study of clinic patients and waitlist patients

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## Abstract

**Objective:** Specialized interdisciplinary menopause clinics in Edmonton provide care for women suffering from severe menopausal symptoms. Our objectives were to evaluate changes over time in patient-reported menopause symptoms and quality of life (QOL) in a cohort of clinic patients, compared to a cohort of women recruited from the clinic waitlists.

**Methods:** We conducted a prospective study of consecutive new patients in two clinics. Consenting women completed a generic menopause symptom severity questionnaire (MSSQ) and the menopause-specific quality of life (MENQOL) questionnaire at their first clinic and at a follow-up visit. Demographics, medical and obstetric histories, and medication use were extracted from patient charts. Women on the clinics' waitlists were enrolled as controls; corresponding data for baseline and follow-up were collected in mailed-in surveys. Descriptive and paired statistics were used for data analysis. Agreement plot was created to visualize the agreement between MSSQ and MENQOL scores.

**Results:** A total of 139 women were recruited: 98 attended the clinic and 41 were from the waitlist. Follow-up data were available for 99 women (71 clinic and 28 waitlist). There were no significant differences between clinic and waitlist patient characteristics. Women attending the clinics experienced significant reduction in symptom severity (mean MSSQ scores) and improvement in QOL (reduced MENQOL "bother" scores). Women on the clinic waitlist did not demonstrate significant changes over a similar timeframe. MENQOL correlated well with menopause symptom severity assessment.

**Conclusion:** Women attending specialized menopause clinics experienced improvement in symptoms and QOL, whereas women on the waitlists did not experience these changes.

**Key Words:** Analysis of baseline and follow-up – Menopause – Menopause clinic – Menopause symptoms – Menopause-specific quality of life.

**Video Summary:** Supplemental Digital Content 1, <http://links.lww.com/MENO/A418>.

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monal changes during the menopause transition period can lead to an array of debilitating physical, psychosocial, and sexual symptoms with substantial variation in severity perception and impact of quality of life (QOL) in individual women.<sup>1,2</sup>

Women with severe menopausal symptoms may be treated at specialized, multidisciplinary menopause clinics. In Edmonton, patients may be referred by general practitioners or OB/Gyn

physicians to two menopause clinics, at the Lois Hole Hospital for Women and the Grey Nuns Community Hospital. In a retrospective cohort of women attending a specialized menopause clinic, we found that patients experienced complex menopausal symptoms and other concurrent health problems, providing insight into the challenges of care for these women. Although limited in scope the findings from the retrospective study also implied an improvement of symptom severity over time of care at the clinic.<sup>3</sup>

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Although treatment of symptom severity is at the forefront of menopause care, QOL measures have become an essential part of health outcomes assessment. QOL constitutes a multidimensional concept that accounts for subjective evaluation of various aspects in life including physical and psychosocial wellbeing. As menopause symptoms encompass a multitude of indicators, the inclusion of subjective QOL measures in clinical settings is vital.

In the past 20 years a variety of QOL tools specific for women in menopause transition have been developed that have helped to conceptualize and measure multiple indicators and how they impact a woman's general wellbeing. The menopause-specific QOL (MENQOL) questionnaire was developed as a research tool to measure condition-specific QOL in early menopause.<sup>4,5</sup> MENQOL has found wide and increasing use in clinical trials and research since its introduction in 1996; however, its use in clinic settings is not well studied.<sup>6</sup>

The primary objective of this study was to evaluate changes over time in patient-reported menopause symptoms (measured using the clinic's Menopause Symptom Severity Questionnaire [MSSQ]<sup>3</sup>) and QOL (measured using MENQOL) in a cohort of women attending specialized menopause clinics in Edmonton, compared to a cohort of women recruited from the clinic waitlists (study outcome). A secondary objective was to test the number of clinic and waitlist patients who would be willing to join a cohort study, to allow for suitable design of future research in these clinics.

## METHODS

### Study design and setting

We conducted a prospective cohort study of Lois Hole Hospital for Women or Grey Nuns Community Hospital menopause clinic patients recruited over a 5-month period, and a cohort of patients who remained on the clinic waitlists.

### Participants

Eligible participants were all consecutive new patients seen at either menopause clinic between May and October 2015. The women were recruited at their first clinic appointment. The no-treatment comparison cohort consisted of women identified from the menopause clinic waitlists. Women recently added to the waitlist were invited to participate by mail. Wait times for women on the waitlist may be up to 1 year for cases considered nonurgent. Included in the study were all women willing to provide consent. Because we provided the self-reported questionnaires only in the English language, women not fluent in the English language were excluded.

### Procedures

#### *Clinic patient cohort (exposed group)*

At their first clinic visit, consenting patients were invited to complete questionnaires including demographics, medication use, medical history, and the generic MSSQ already in use at the clinic.<sup>3</sup> They were also given the MENQOL questionnaire to fill in and rate their experience of completing the MENQOL questionnaire. After completing the questionnaires,

usual clinic care was provided, including patient education and treatment recommendations. MENQOL and MSSQ were completed again at their scheduled 3-month follow-up visit.

#### *Waitlist patient cohort (unexposed group)*

Consenting waitlist patients were mailed the same questionnaires: about demographics, medications, medical history, MSSQ and MENQOL, and were asked to report on their MENQOL experience. A follow-up survey with MSSQ and MENQOL questionnaires was mailed 3 months after receipt of the first survey. Nonresponders were prompted again after 3 weeks by mail or phone, according to their preference listed on the consent form. Waitlist patients did not receive specialized menopause care from the menopause clinics during the time from initial to follow-up surveys.

### Data collection

Demographics, medication use, medical and obstetric histories, and data from self-administered MSSQ and MENQOL questionnaires from clinic patients were collected after the initial and follow-up visits. Data on recommended treatment was extracted from the patient clinic charts. Medical history and medication use was crosschecked with the information on the charts. Waitlist participant data on demographics, brief medical history, medication use, and baseline MENQOL and MSSQ were collected from their survey response by mail or phone. Data from completed MSSQ and MENQOL were collected again from the follow-up response. All study data were anonymized and extracted and managed using REDCap<sup>7</sup> electronic data capture tools hosted and supported by the Women and Children's Health Research Institute at the University of Alberta.

### Data analysis and statistics

Descriptive statistics was used to present baseline characteristics. Two-tailed *t*-test or Fishers exact test were used to compare demographics between clinic and waitlist patients. For each of the four MENQOL domains (vasomotor = 3 items, psychosocial = 7 items, physical = 16 items, sexual = 3 items) the mean score was computed. Scores ranged from 1 (symptom not experienced) to 8 (symptom experienced with highest score of "bother"). Only completed domains were used for analysis. For each patient, MSSQ symptoms were scored (none = 1, mild = 2, moderate = 3, severe = 4), and an overall mean symptom score calculated from the 35 items. Patients with >5 items missing from the 35-item MSSQ were omitted from the analysis. As well, follow-up surveys returned >6 months post baseline survey were not included. Paired statistics compared baseline and follow-up MSSQ scores and baseline and follow-up MENQOL scores. Change in MENQOL and MSSQ scores were compared with each other and between the clinic and wait list patients. A value of  $P < 0.05$  was considered significant. To visualize the agreement between MSSQ and MENQOL, agreement plot was created from data consolidated for clinic and waitlist patient data. To make MSSQ and MENQOL scales comparable for this purpose, MSSQ scores were multiplied by 2 to correspond to

MENQOL's 8-point scoring. Statistical analyses were performed by SAS 9.4 (SAS Institute Inc, Cary, NC) or SPSS version 21 (IBM, Armonk, NY). Data on participant numbers for the secondary objective of the study were analyzed descriptively.

### Ethics

The study was approved by the University of Alberta Health Research Ethics Board (Pro00055860).

## RESULTS

### Recruitment

Of a total of 176 women approached to participate in this study, we were able to collect baseline data from 98 (of 114, 86%) patients admitted to the clinic (exposed group) and from 41 (of 62, 66%) patients from the clinic waitlist. Details of recruitment are outlined in the flow diagram (Fig. 1). The number of completed data available for questionnaire analysis varied between 55 and 62 (out of 71) for clinic and 20 to 22 (out of 28) for waitlist patients (Fig. 1).

Approximately 70 to 120 new patients are being seen in a 5-month time frame in both Edmonton menopause clinics. We estimated an availability of 60 to 102 (85%) patients at their initial clinic visit, and 56 to 96 (additional 5% loss) at the follow-up visit. With 98 consented participants at initial clinic

visit and 71 providing data for follow-up assessment our study met the expected sample size.

### Patient characteristics

Patient characteristics are reported in Table 1. There was no significant difference in patient demographics between the clinic (exposed) and the waitlist (unexposed) cohorts with regard to age, body mass index, lifestyle options, and gynecologic history (Table 1). Menopause-related medication and therapy use were not significantly different at baseline between clinic patients (at their first clinic visit) and waitlist patients (reported medications in the baseline survey).

### Follow-up assessment

Data from 71 clinic (exposed) and 28 waitlist (unexposed) patients were available for follow-up analysis.

The time span between baseline and follow-up was not significantly different for clinic versus waitlist patients; the mean for both ranged around 4 months (Table 2). Waitlist patients reported similar medication and treatment for their follow-up survey as their initial survey; the percentage of waitlist women who reported use of hormone therapy (HT) had slightly increased from 37% to 46% but this increase did not reach significance (Table 2). Data on HT type could not be established from the mailed-in survey of waitlist patients.

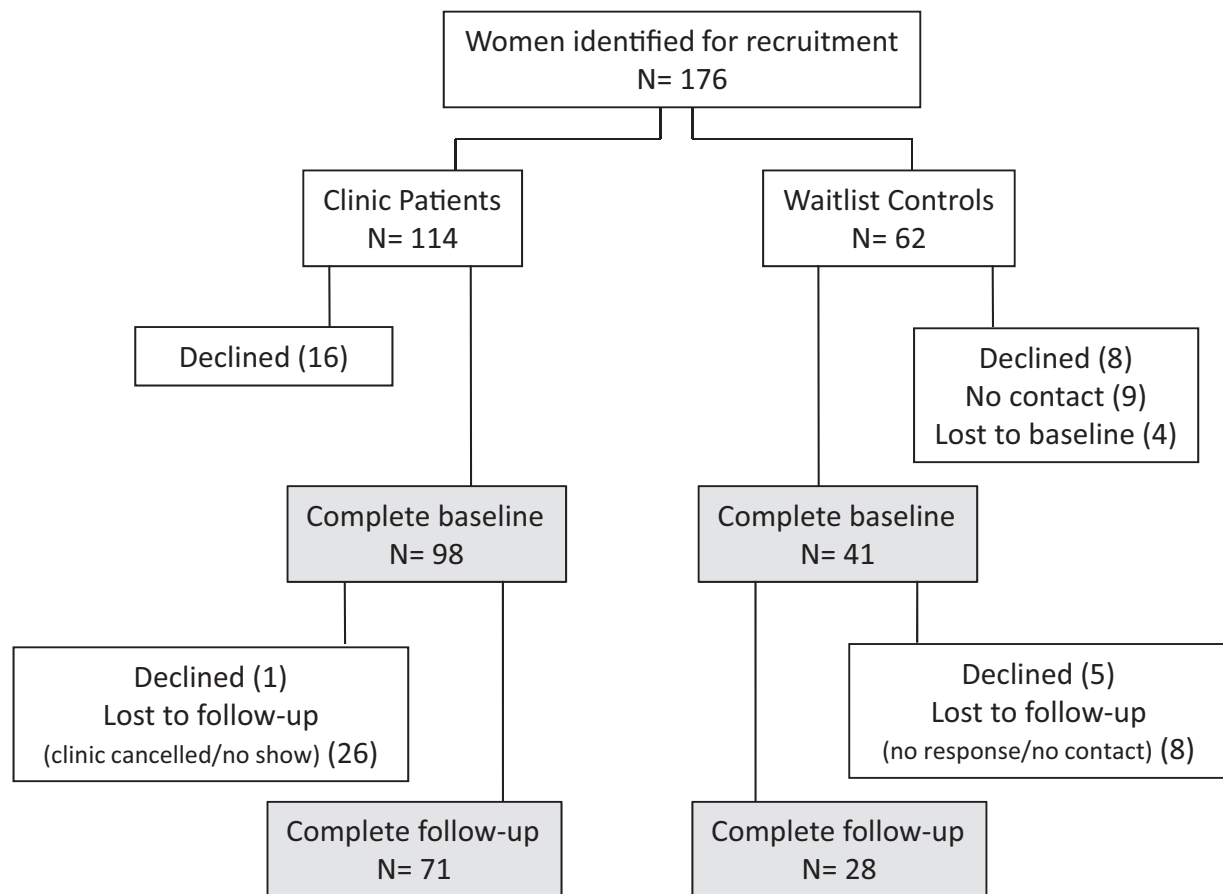


FIG. 1. The study flow chart shows the distribution of clinic and waitlist patient recruitment and data collection for baseline and follow-up.

TABLE 1. Patient characteristics at baseline

	Clinic patients (exposed group) N = 98	Waitlist patients (unexposed group) N = 41	<i>P</i> <sup>a</sup>
Patient characteristics			
Age at initial clinic visit years (mean ± SD)	53.5 ± 6.5	53.4 ± 7.3	0.945
BMI (mean ± SD)	29.5 ± 7.0	28.4 ± 6.2	0.384
<i>N</i> <sub>c</sub> = 97, <i>N</i> <sub>w</sub> = 39			
Smoking (N [%])	10 (10.4)	6 (14.6)	0.563
<i>N</i> <sub>c</sub> = 96, <i>N</i> <sub>w</sub> = 41			
Alcohol consumption (N [%])	71 (75.5)	28 (68.3)	0.403
<i>N</i> <sub>c</sub> = 94, <i>N</i> <sub>w</sub> = 41			
≤7 Drinks/wk	61	26	
>7 Drinks/wk	6	1	
Caffeine consumption (N [%])	88 (64.6)	39 (95.1)	1.000
<i>N</i> <sub>c</sub> = 93, <i>N</i> <sub>w</sub> = 41			
≤4 Drinks/day	81	36	
>4 Drinks/day	7	3	
Obstetrics history			
Menstrual periods (N [%])			
No	78 (79.6)	34 (82.9)	0.815
Yes	20 (20.4)	7 (17.1)	
Period (N [%])			
>12 Months ago	74 (75.5)	26 (63.4)	0.154
Years since (mean ± SD)	6.5 ± 5.8	10.4 ± 10.7	
Regular	1 (1.0)	1 (2.4)	0.459
Irregular	19 (19.4)	6 (14.6)	
Oophorectomy (N [%])	12 (12.2)	5 (12.2)	1.000
Years since (mean ± SD)	13.4 ± 12.5	14.6 ± 20.5	
BSO (N [%])	10 (10.2)	1 (2.4)	0.174
Medical history (N [%])			
Hypertension	18 (18.4)	12 (29.3)	0.178
Hyperlipidemia	11 (11.2)	7 (17.1)	0.408
Cancer	8 (8.2)	6 (14.6)	0.352
Diabetes	6 (6.1)	4 (9.8)	0.725
Heart disease	3 (3.1)	3 (7.3)	0.360
Medication and therapies (N [%])			
Hormone therapy (HT) <sup>b</sup>	41 (41.8)	15 (36.6)	0.704
Systemic	29 (29.6)		
Vaginal	10 (10.2)		
Both	2 (2.0)		
Antidepressants	19 (19.4)	10 (24.4)	0.502
Herbals	10 (10.2)	9 (22.0)	0.106
Clonidine	5 (5.1)	6 (14.6)	0.084
Hormonal contraceptives	4 (4.1)	1 (2.4)	1.000
Other <sup>c</sup>	20 (20.4)	12 (29.3)	0.267
Medication and Therapies recommended in clinic (N [%])			
Hormone therapy (HT)	74 (75.5)	Not applicable	
Systemic	21 (21.4)		
Vaginal	30 (30.6)		
Both	23 (23.5)		
Antidepressants	4 (4.1)		
Herbals	9 (9.2)		
Clonidine	3 (3.1)		
Hormonal contraceptives	0 (0)		
Other <sup>c</sup>	3 (3.1)		

BMI, body mass index.

<sup>a</sup>Two-tailed *t* test with independent variables was used for age and BMI and Fisher exact statistics was used for all other comparison.

<sup>b</sup>The information provided by waitlist patients was insufficiently detailed to know which types of HT were used.

<sup>c</sup>Other medication and therapies include vitamins, Ca, and condition-specific drugs.

### Assessment of symptom severity and quality of life from baseline to follow-up

Complete baseline and follow-up data within a 6 months (183 days) time frame was available for maximal 62 clinic

TABLE 2. Follow-up assessment

	Clinic patients (exposed group) N = 71	Waitlist patients (unexposed group) N = 28	<i>P</i>
Time between baseline and follow-up (days)			
Mean ± SD	115.85 ± 52.16	127.07 ± 54.18	0.342 <sup>a</sup>
Medication and therapies collected from waitlist survey (N [%])			
Hormone therapy (HT)		13 (46.4)	0.461 <sup>b</sup>
Antidepressants		0 (0)	
Herbals		4 (14.3)	
Clonidine		4 (14.3)	
Hormonal contraceptives		4 (14.3)	
Other <sup>b</sup>		4 (14.3)	

<sup>a</sup>Two-tailed *t* test with independent variables was used for time difference.

<sup>b</sup>Fisher exact statistics was used to compare HT use for waitlist patients follow-up versus waitlist patients baseline (Table 1).

(exposed) patients (MSSQ *n* = 58, MENQOL vasomotor *n* = 61, MENQOL psychosocial *n* = 62, MENQOL physical *n* = 55, MENQOL sexual *n* = 60) and 22 waitlist (unexposed) patients (MSSQ *n* = 22, MENQOL vasomotor *n* = 20, MENQOL psychosocial, physical, and sexual each *n* = 21) (Table 3). Symptom severity was significantly reduced in clinic but not in wait list patients as assessed by reduction in mean MSSQ scores (−0.33, *P* < 0.001 for clinic vs −0.12, *P* = 0.17 for wait list patients). Similarly, MENQOL results showed significant reduction in mean “bother” scores (*P* < 0.01) for all four MENQOL domains for clinic patients, indicating improved QOL. These reductions in MENQOL domain scores were greater than the 0.5 difference regarded as being the minimally clinically significant different in cancer patients.<sup>8</sup> Differences in MENQOL domain baseline and follow-up scores were not significant for wait list patients (Table 3).

### Questionnaire agreement

To evaluate the agreement between the MSSQ and MENQOL graphically, consolidated baseline data from clinic (exposed) and waitlist (unexposed) patients was used. Mean scores were available for a total of 131 women, excluding those with >5 missing values in either questionnaire. Mean scores in the agreement plot lie on the diagonal or are not far from it, demonstrating that high mean MSSQ severity scores strongly agrees with high mean MENQOL score (Fig. 2).

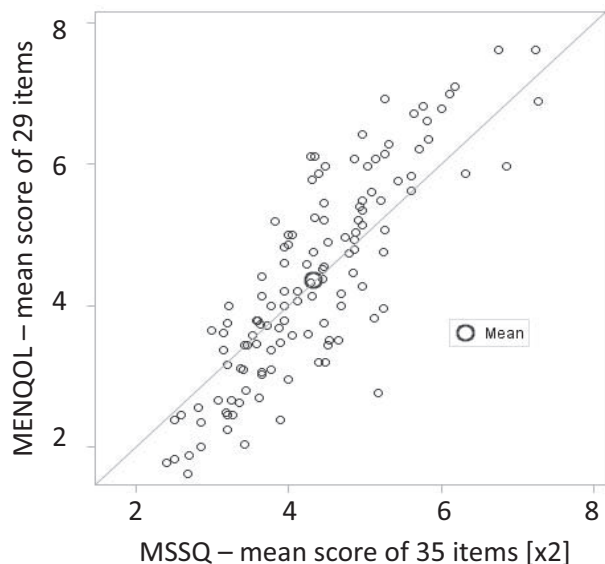
### Experience with menopause-specific quality of life completion

A combined 88% of all participating women found the MENQOL questionnaire easy or very easy to complete. This finding was similar between clinic (86%) and waitlist (92%) patients (Table 4). However, when patients were asked whether answering MENQOL questions impacted their perception of menopause symptoms there was a significant difference between clinic and waitlist patients; more than double the amount of waitlist patients (59% vs 28% clinic patients) reported that questionnaire completion impacted their menopause symptom perception (Table 4).

**TABLE 3.** Menopause symptom severity questionnaire and menopause-specific quality of life outcome

	Clinic patients (exposed group)	Waitlist patients (unexposed group)
Patient questionnaire scores between baseline and follow-up		
MSSQ <sup>a</sup>	N = 58	N = 22
Mean ± SD, baseline	2.12 ± 1.06	2.11 ± 0.96
Mean ± SD, follow-up	1.79 ± 0.93	1.99 ± 1.00
Reduction in score	-0.33	-0.12
<i>P</i> <sup>b</sup>	<0.0001	0.17
MENQOL vasomotor domain <sup>c</sup>	N = 61	N = 20
Mean ± SD, baseline	4.52 ± 2.17	4.97 ± 1.71
Mean ± SD, follow-up	3.56 ± 1.78	4.50 ± 1.66
Reduction in score	-1.02	-0.64
<i>P</i> <sup>b</sup>	0.0004	0.08
MENQOL psychosocial domain <sup>c</sup>	N = 62	N = 21
Mean ± SD, baseline	4.12 ± 1.77	4.27 ± 1.64
Mean ± SD, follow-up	3.59 ± 1.77	3.65 ± 1.77
Reduction in score	-0.52	-0.62
<i>P</i> <sup>b</sup>	0.004	0.07
MENQOL physical domain <sup>c</sup>	N = 55	N = 21
Mean ± SD, baseline	4.40 ± 1.56	4.21 ± 1.27
Mean ± SD, follow-up	3.64 ± 1.50	4.07 ± 1.59
Reduction in score	-0.76	-0.13
<i>P</i> <sup>b</sup>	< 0.0001	0.61
MENQOL sexual domain <sup>c</sup>	N = 60	N = 21
Mean ± SD, baseline	4.21 ± 1.55	4.41 ± 2.03
Mean ± SD, follow-up	3.27 ± 2.15	3.83 ± 2.16
Reduction in score	-0.94	-0.58
<i>P</i> <sup>b</sup>	0.0003	0.09

MENQOL, menopause-specific quality of life; MSSQ, menopause symptom severity questionnaire.  
<sup>a</sup>Includes only patients with follow-up within 6 months post baseline and MSSQ with ≤5 data points missing.  
<sup>b</sup>Two-tailed paired *t* test.  
<sup>c</sup>Includes only patients with follow-up within 6 months post baseline and completed MENQOL domains.



**FIG. 2.** The plot shows high agreement between menopause-specific quality of life (MENQOL) and menopause symptom severity questionnaire (MSSQ) scores. Each circle represents the intersecting point of mean MENQOL score (on a scale from 1 to 8) on the y-axis and double the mean MSSQ score (to generate an identical scale) on the x-axis from one patient. Diagonal line (*y*=*x*) serves as a reference for identical scores from both questionnaires.

**TABLE 4.** Menopause-specific quality of life questionnaire evaluation

	Clinic patient <sup>a</sup> (exposed group) N = 98	Waitlist patients (unexposed group) N = 41	<i>P</i> <sup>b</sup>
MENQOL completion difficulty			
Very easy	56 (57.1)	23 (56.1)/(10.9 ± 7.2) <sup>c</sup>	0.534
Easy	29 (29.6)	15 (36.6)/(15.1 ± 6.6) <sup>c</sup>	
Intermediate	6 (6.1)	2 (4.9)/(not stated)	
Hard	1 (1.0)	0 (0.0)	
Very hard	0 (0.0)	1 (2.4)/(20) <sup>c</sup>	
Impact on menopause symptom perception			
Yes	27 (27.6)	24 (58.5)	0.006
No	43 (43.9)	11 (26.8)	
Not sure	22 (22.4)	6 (14.6)	

MENQOL, menopause-specific quality of life.  
<sup>a</sup>Six clinic patients did not complete the MENQOL rating.  
<sup>b</sup>Pearson chi square.  
<sup>c</sup>Minutes to complete (mean ± SD).

**DISCUSSION**

Women attending the Edmonton specialized menopause clinics experienced reduced symptoms and increased QOL from their initial to follow-up clinic visits. A comparable cohort of women on the waitlist for the clinics was used as a control. These women did not receive menopause-specific treatment from the clinics during follow-up and did not experience improvement in symptoms or QOL over the same timeframe. Results from the two patient-reported menopause outcomes confirmed that an increase in mean MSSQ symptom severity scores strongly correlated with an increase in mean MENQOL score. Our study demonstrated that clinic patients were willing to join this research, providing the opportunity to conduct future larger studies to explore outcomes of menopause interventions.

A correlation between severe menopause symptoms and increased symptoms for concomitant illnesses or risk factors has been found for metabolic syndrome, cardiovascular, and inflammatory diseases.<sup>9-12</sup> It is the aim of the specialized clinics to treat each patient according to their specific complex menopause symptoms taking into account their concurrent illnesses (Table 1).<sup>3</sup> The interdisciplinary nature of the clinic is key to achieving patient-specific education and individualized care and involves regular follow-up visits to monitor progression in treatment and wellbeing. Patients are followed in the clinic until their menopause symptoms have stabilized.

As HT is the most effective treatment for menopause symptoms<sup>13,14</sup> and patients are being referred for the specific management of moderate-to-severe menopause symptoms, it was not surprising that HT was recommended for three quarters of clinic patients. Vaginal estrogen therapy was started either alone or in combination with systemic HT for genitourinary syndrome of menopause (GSM) symptoms. GSM is highly prevalent in postmenopausal women<sup>13</sup> and negatively affects QOL,<sup>15,16</sup> thus, improving GSM symptoms will improve overall QOL. We did not capture changes in HT doses or formulations, nor were we able to assess the appropriateness of treatment recommendations and how it

correlated to symptom relief, as this was beyond the scope of the study.

QOL measurement is conceptually distinct from health status or other causal indicators of QOL. Although clinical symptom assessment is central to patient care, it is equally important to include the perspective of the patients and assess how much illness and treatments affect and alter expectations of wellness and wellbeing. Since the perception of menopause symptom severity and bother is a very personal experience, a validated QOL tool allows for individual assessment and monitoring of treatment progression. We chose MENQOL for our study because of its wide acceptance as an outcome measure; it has been well validated in a variety of populations, is available in many different languages, and has been used in different types of research.<sup>6</sup> A previously unreported outcome of our study is that the use of MENQOL impacted women's perceptions of their symptoms. More than double the amount of waitlist patients reported that completing the questionnaire impacted their menopause symptoms. A potential reason for this is that women might not have been previously aware that some of the symptoms they experience could be related to hormonal changes during menopause. This realization might have changed their perception towards symptoms, although the exact nature of this observation remains elusive. Further work is needed to identify how this attribute of MENQOL could be used.

We found good agreement between the outcome of the generic symptom severity questionnaire currently in use in the clinic and the validated MENQOL questionnaire.

MENQOL scores match the tendency of MSSQ scores suggesting that women's menopause-related QOL is associated with symptom severity. This is despite the fact that the items in the two outcome measures address different aspects of menopause, with only 13 symptom items shared between the questionnaires. As the MSSQ provides additional symptoms important for clinical care compared to the MENQOL, one approach might be to supplement the MSSQ for use in clinical practice to capture both symptom severity and symptom impact on QOL. For example, it might be useful to know if specific symptoms "bother" patients. Clinicians may find this helpful in their understanding of the patient's experience of menopause, as opposed to relying on report of frequency and severity of particular symptoms.

### Study limitations

Our study is limited in a number of ways. Firstly, this study was conducted specifically at the two Edmonton Menopause Clinics; the results may therefore have limited generalizability. However, specialized menopause clinics in North America are still rare and our example might encourage the institution of more interdisciplinary clinics of this kind.

Secondly, this is a relatively small study, and the drop-out rate was considerable, particularly for the waitlist patients, despite using a variety of techniques to contact nonrespondents. We cannot tell why women left the study, including the

possibilities that they felt their symptoms had resolved over time, or because they decided to seek care elsewhere. We also have no knowledge whether waitlist patients included in our study have sought care outside of the Edmonton Menopause clinics. In addition, the small sample numbers, particularly for waitlist patients, may have an effect on the borderline statistics evident in the reduction of symptom scores. A larger study with better follow-up would obviously increase the value of the study and reduce the likelihood of bias and statistics limitation.

We have no knowledge whether clinic patients are compliant with medications and therapies recommended by the clinic, specifically with respect to HT treatment. As a result of the Women's Health Initiative in 2002 women were initially reluctant to treatment with HT and studies conducted in 2003 found that about one third of the women did not comply with the recommended estrogen treatment.<sup>17,18</sup> However, a more recent study revealed that women who initially were opposed to HT treatment might consider it later after receiving education about HT advantages and disadvantages. The authors concluded that a specialized menopause clinic is the ideal setting for proper advice for women.<sup>19</sup>

### Study strength

The strength of this study lies in the valid control cohort—women were of similar age, demographic, and health and lifestyle background—to assess the women's clinical outcomes after attending a specialized menopause clinic. As well, the study design was appropriate to explore whether the addition of a menopause-specific QOL measure would be feasible and useful in clinical practice. The main difference between the cohorts was that the clinic group was exposed to specialized care with providers trained in all aspects of menopause management and included informed education on symptom and treatment topics.

### CONCLUSION

Symptomatic women attending the Edmonton specialized menopause clinics appear to benefit from the educational and personalized medical care provided by the clinic, suggesting reduced menopausal symptoms and improved QOL. By comparison, waitlist patients' symptom severity and QOL did not change significantly over a similar time period. MENQOL was acceptable to women and was completed by the majority at their clinic or study follow-up. MENQOL provided a useful contribution to the outcome measures used by the clinic, specifically addressing women's QOL. Further work is needed to explore the use of this tool, originally designed for use in clinical trials, in clinical practice.

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