

Examining sex differences in health service use before and after diagnosis in a rural and remote memory clinic

Julie Kosteniuk¹, Beliz Acan Osman², Debra Morgan¹, Chandima Karunanayake¹, Megan E. O'Connell¹, Allison Cammer¹, Andrew Kirk¹, Meric Osman³, Andrew Campbell¹, Tora Levinton¹, Jacqueline Quail¹

¹University of Saskatchewan, ²Saskatchewan Health Quality Council, ³Saskatchewan Medical Association

BACKGROUND

Biological sex is a known risk factor for dementia, with females accounting for over 60% of persons with diagnosed dementia in Canada [1]. Recent Canadian studies report sex differences in acute hospital care following a new dementia diagnosis in community-dwelling older adults, however results regarding the use of certain other health services are mixed [2,3]. Investigating whether women and men with dementia use health services at different rates is important to better understand how sex and gender shape service use and care needs in this population.

OBJECTIVES

The purpose of this study was to examine sex differences in annual rates of health service use in patients from five years before until five years after diagnosis in the specialist Rural and Remote Memory Clinic (RRMC) in Saskatchewan.

METHODS

- Retrospective cohort study using linked clinical and administrative health data of patients who received a diagnosis in the specialist Rural and Remote Memory Clinic between 2004-2016.
- Descriptive statistics were used to measure annual health service utilization of females and males.
- For each 5-yr period before diagnosis (pre-index) and after (post-index), differences were examined between females and males in average annual health service use. Statistical analyses were conducted using the Kruskal Wallis test for proportions ($p < 0.05$) and the two independent samples t-test for means ($p < 0.05$).
- 403 RRMC patients had complete health service coverage in pre- and post-index
 - 228 female (56.6%; mean \pm SD age 71.7 \pm 11.2)
 - 175 male (43.4%; mean \pm SD age 70.4 \pm 10.9)
- RRMC diagnoses
 - Alzheimer's disease (female 43.6%, male 32%, $p = 0.02$)
 - Non-AD dementia (female 16.7%, male 24.6%, $p = 0.05$)
 - MCI (female 16.2%, male 14.9%, $p = 0.19$)
 - Subjective CI (female 21.6%, male 25.1%, $p = 0.39$)
 - Other conditions (female <2%, male 3.4%)

Disclaimer

This study is partly based on de-identified data provided by the Saskatchewan Ministry of Health and eHealth Saskatchewan. The interpretation and conclusions contained herein do not necessarily represent those of the Government of Saskatchewan, the Saskatchewan Ministry of Health, or eHealth Saskatchewan.

Acknowledgements

This project was made possible by the support of Saskatchewan Health Quality Council leadership and staff. Funding was provided by the College of Medicine, University of Saskatchewan. The RaDAR Team is grateful for funding from the Bilokreli Family Fund.

Email julie.kosteniuk@usask.ca for more information.

	Male n (%) or M (SD)	Female n (%) or M (SD)	p value
Age, years	70.4 (10.9)	71.7 (11.2)	0.26
Married/common law	152 (89.9)	133 (59.6)	<0.0001
Live alone	11 (6.7)	66 (29.6)	<0.0001
MMSE, total score/30	24.1 (4.9)	24.3 (4.3)	0.67
QOL-AD self-rated, total score/52	35.9 (9.6)	35.7 (6.2)	0.90
FAQ caregiver-rated, total score/30	11.8 (8.9)	11.6 (8.0)	0.80
Zarit Burden caregiver self-rated, total score/48	14.4 (9.3)	11.5 (8.2)	<0.001

Table 2. Average annual health service use in 5-year PRE-INDEX period by sex

	Male % or M	Female % or M	p value
Family Physician visits (M)	11.9	13.8	0.048
Specialist visits (M)	9.9	10.1	0.85
Hospital admission (%)	31.5	34.7	0.60
30-day hospital readmission (%)	4.6	5.2	0.46
Total length of stay, days (M)	6.0	5.7	0.63
Drug dispensations, all-type (M)	35.2	38.8	0.40
Drug dispensations, dementia specific (M)	7.1	3.8	0.02

Table 3. Average annual health service use in 5-year POST-INDEX period by sex

	Male % or M	Female % or M	p value
Family Physician visits (M)	16.4	18.0	0.19
Specialist visits (M)	11.7	10.1	0.20
Hospital admission (%)	34.1	29.5	0.25
30-day hospital readmission (%)	6.5	4.6	0.12
Total length of stay, days (M)	9.5	11.5	0.13
Drug dispensations, all-type (M)	58.7	66.6	0.03
Drug dispensations, dementia specific (M)	9.5	10.0	0.42

5-yr Pre-index Period

- Females had a higher average annual number of family physician visits (mean 13.8 vs 11.9, $p = 0.048$) and lower number of dementia-specific drug dispensations (mean 3.8 vs. 7.1, $p = 0.02$).

5-yr Post-index Period

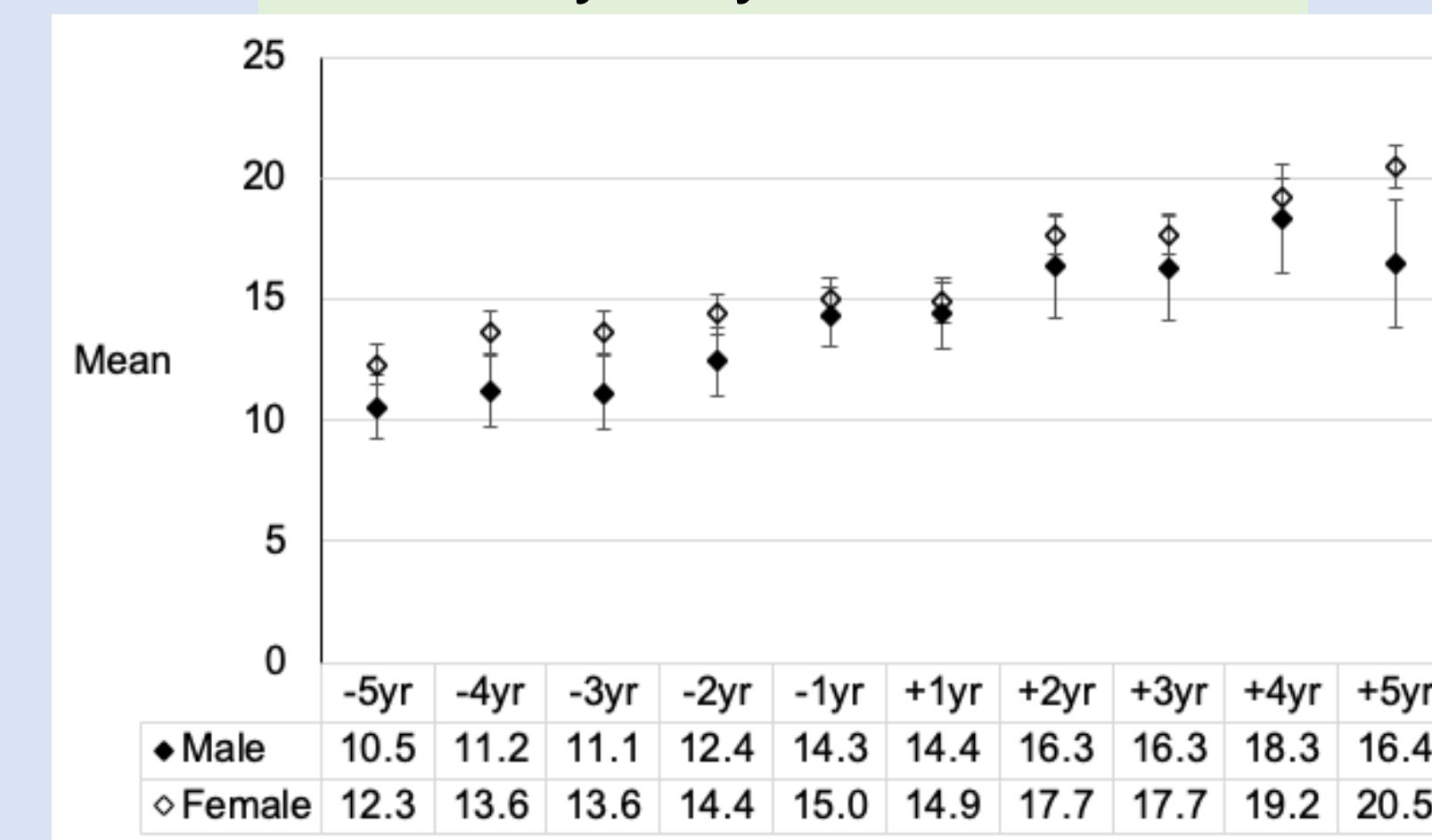
- Females had a higher average annual number of all-type drug dispensations (mean 66.6 vs 58.7, $p = 0.03$).

- No sex differences were observed in the pre-index or post-index average annual number of specialist visits, proportion of patients with at least one hospitalization or 30-day hospital readmission, or average total length of hospital stay.

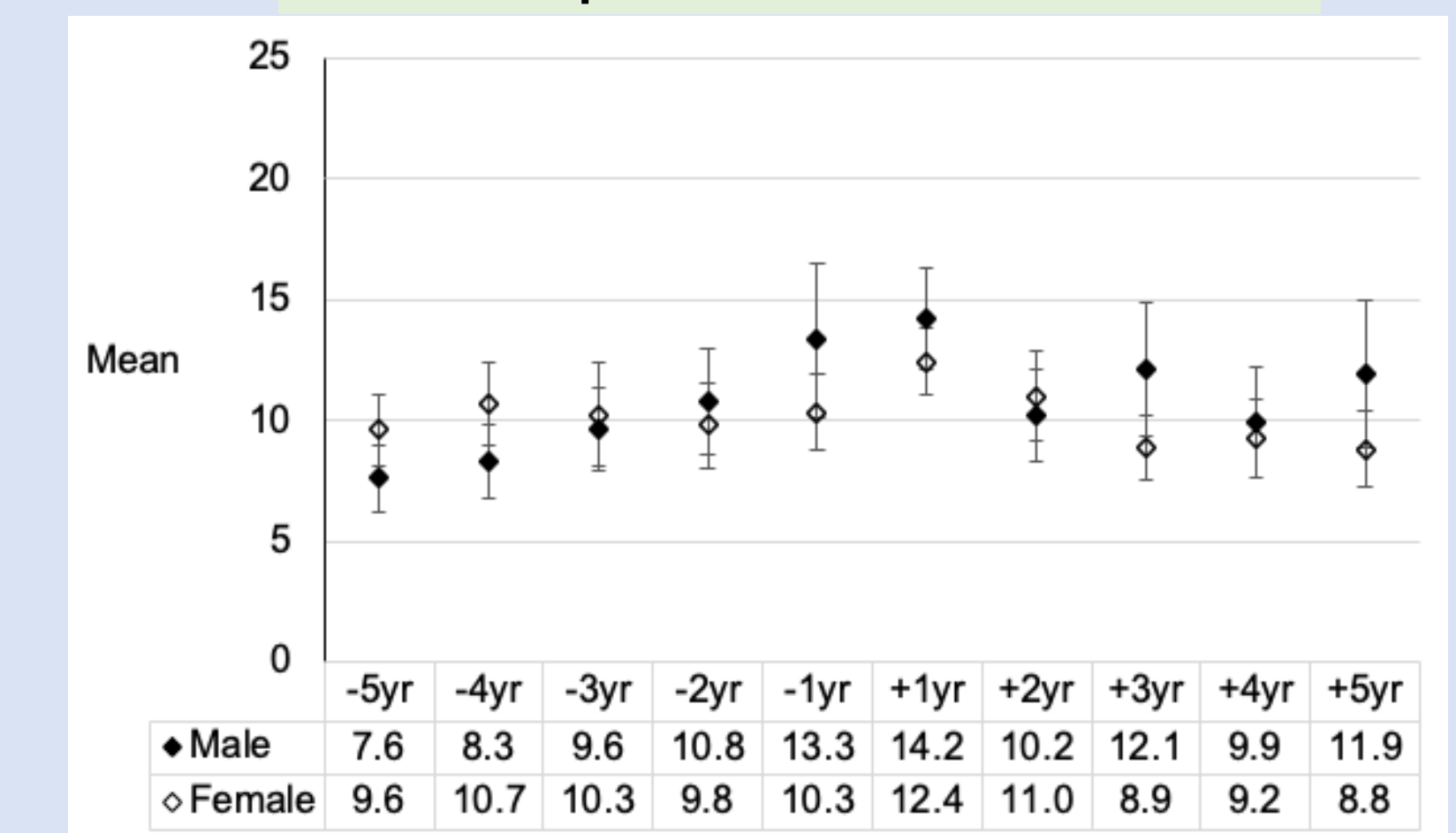
- Limitation: This study does not necessarily reflect patterns corresponding to first dementia diagnosis, as some patients may have received a diagnosis by a health professional prior to the specialist RRMC evaluation.

RESULTS

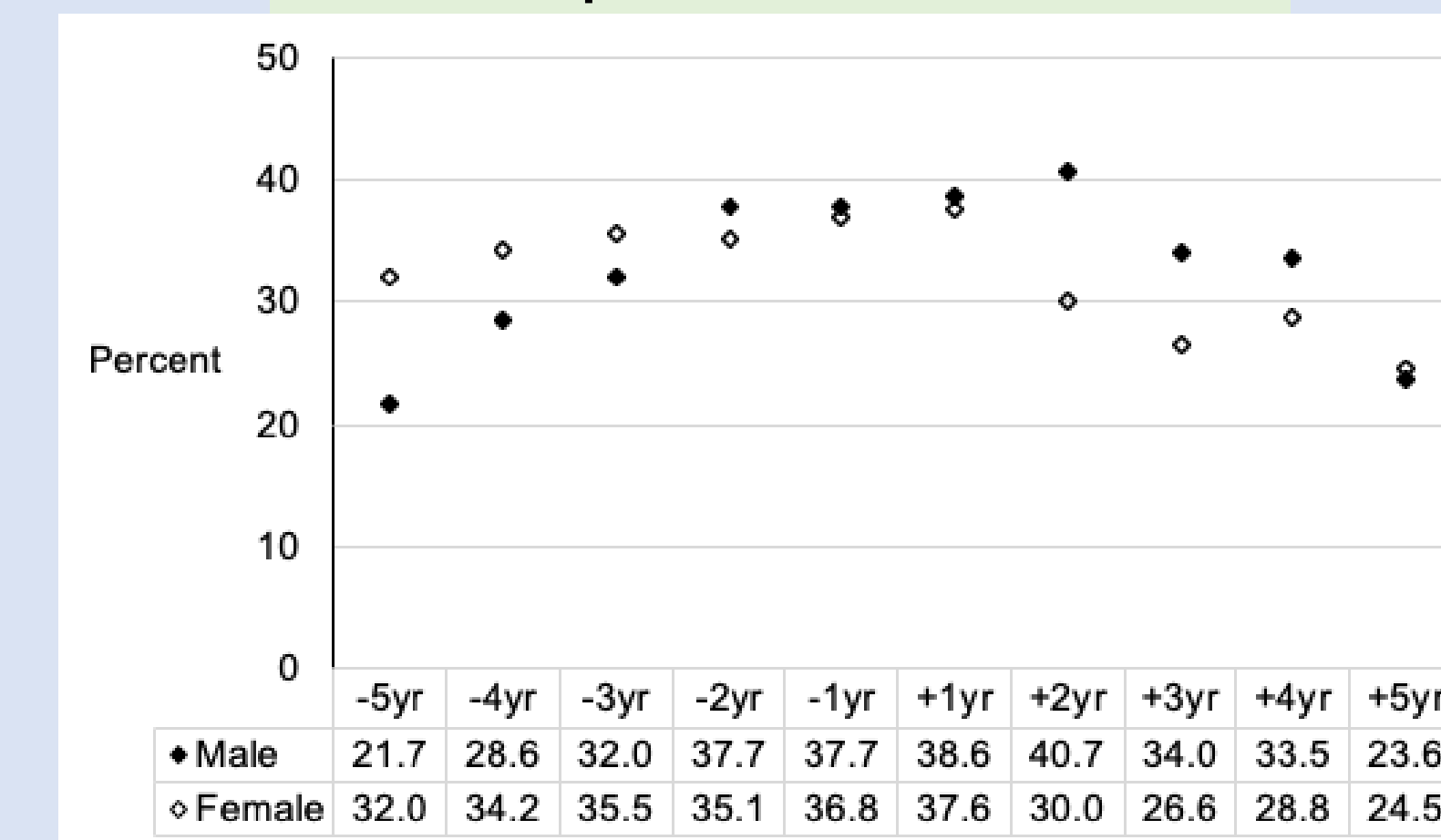
Family Physician Visits



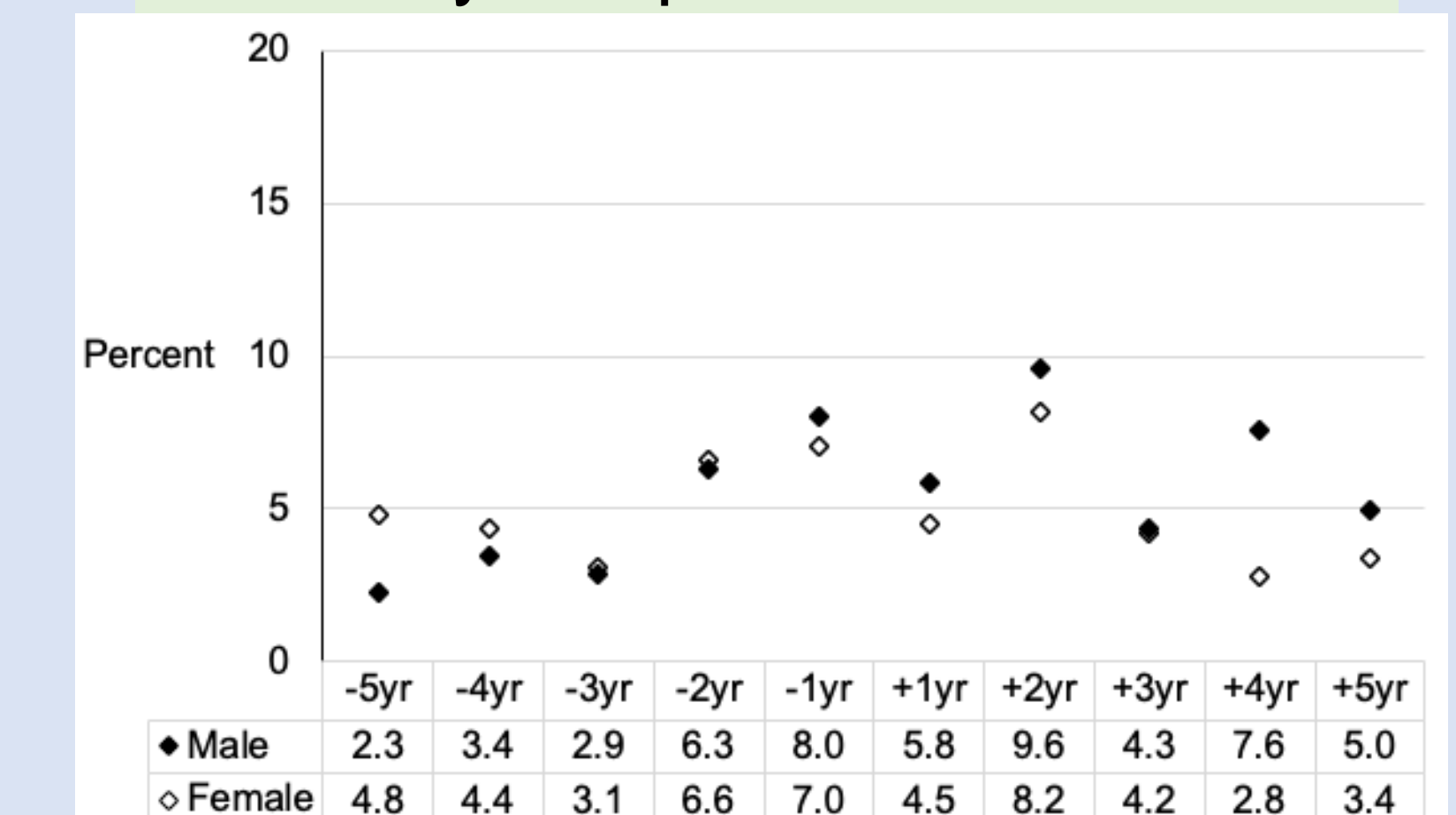
Specialist Visits



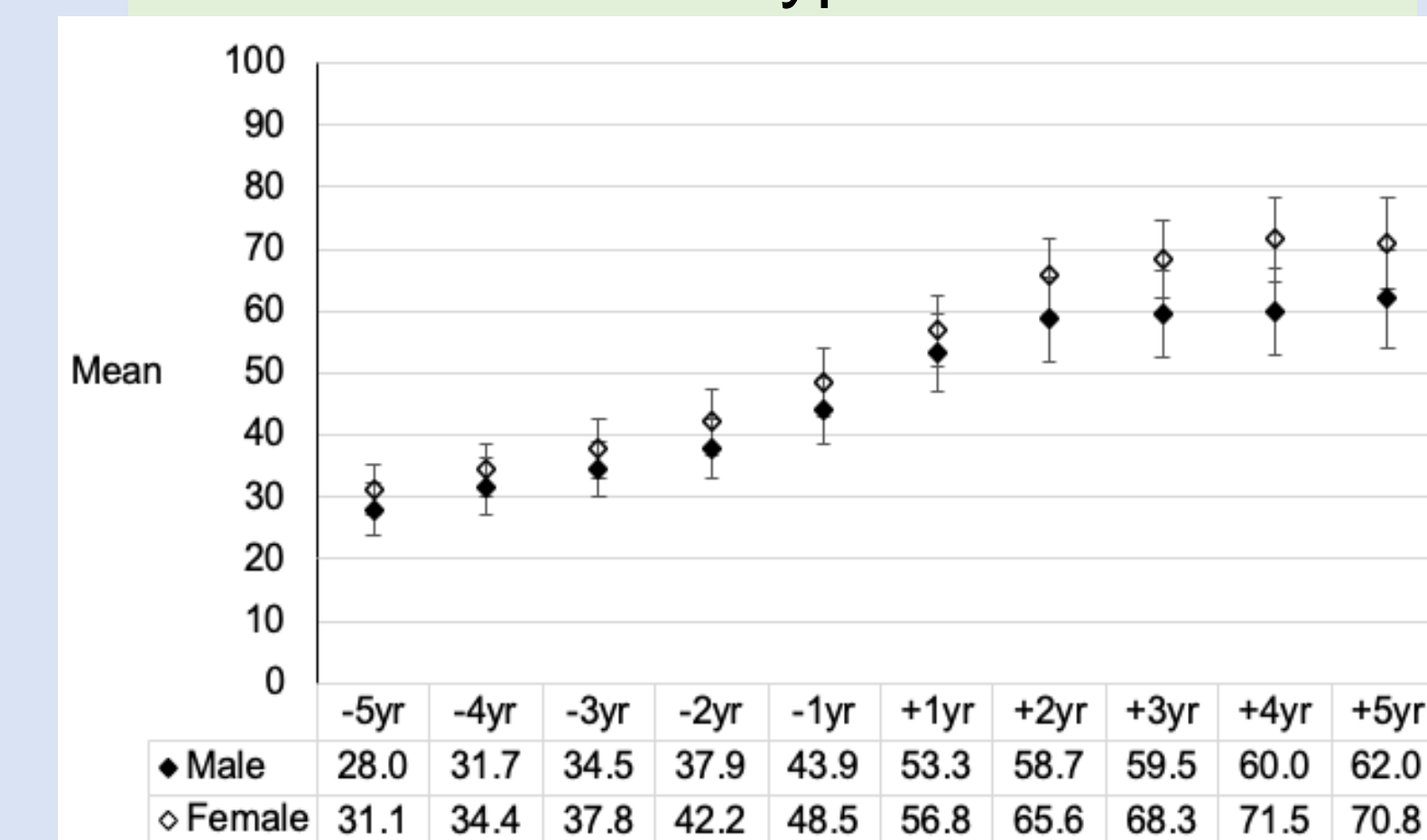
Hospital Admission



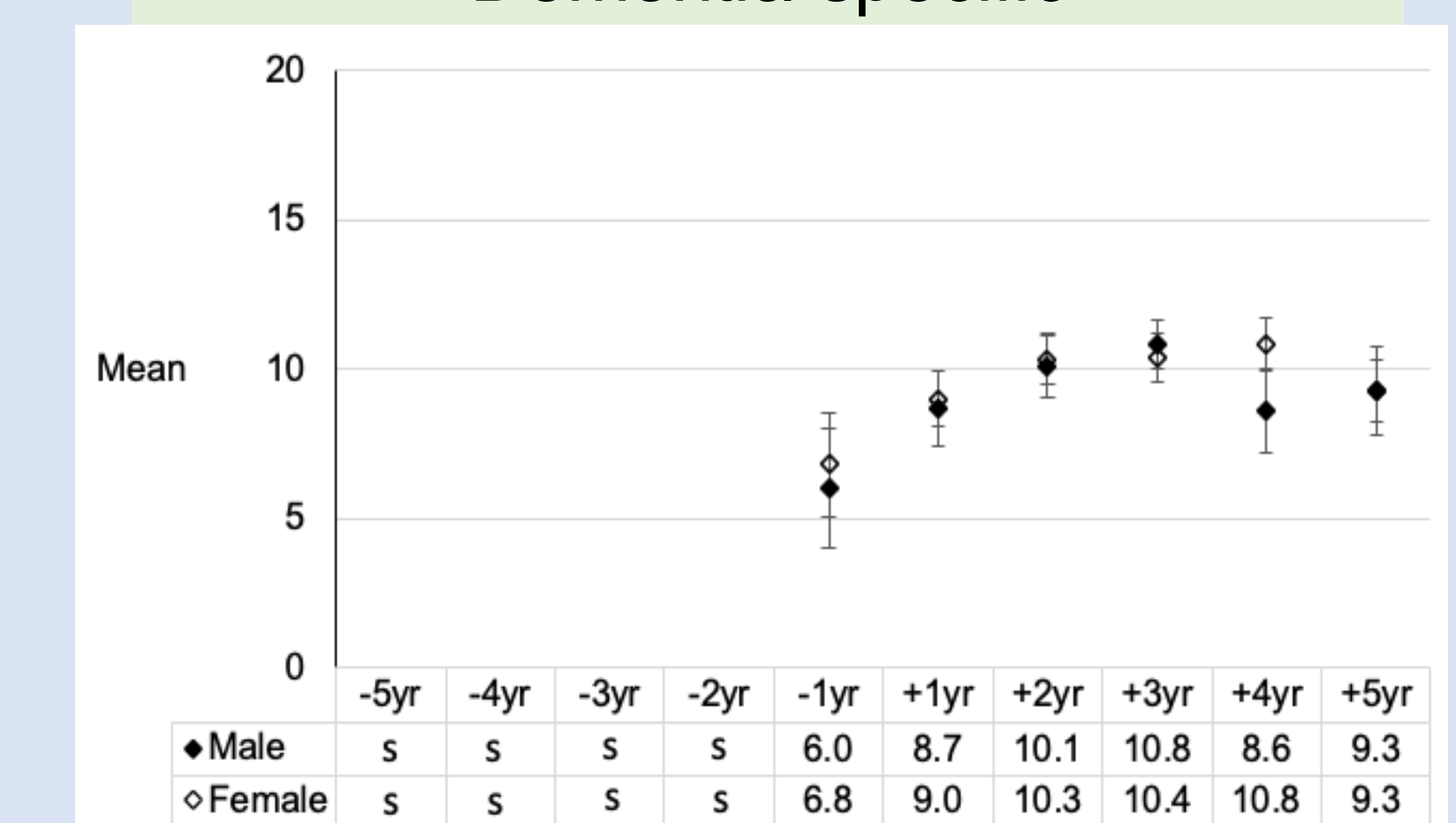
30-day Hospital Readmission



Prescription Drug Dispensations All-type



Prescription Drug Dispensations Dementia-specific



CONCLUSIONS

These findings indicate few sex differences in the use of health services before and after diagnosis in a specialist memory clinic for rural/remote patients. Further research will focus on health service use by females and males, controlling for demographic and clinical factors.

References

- Alzheimer Society of Canada. Navigating the Path Forward for Dementia in Canada: The Landmark Study. 2022. Available from: <http://alzheimer.ca/en/research/reports-dementia/landmark-study-report-1-path-forward>.
- Arsenault-Lapierre G, Bui T, Godard-Sebillotte C, Kang N, Sourial N, Rochette L, Massamba V, Quesnel-Vallée A, Vedel I. Sex differences in healthcare utilization in persons living with dementia between 2000 and 2017: A population-based study in Quebec, Canada. *Journal of Aging and Health*. 2024 Mar 30:08982643241242512.
- Sourial N, Vedel I, Godard-Sebillotte C, Etches J, Arsenault-Lapierre G, Bronskill SE. Sex differences in dementia primary care performance and health service use: A population-based study. *Journal of the American Geriatrics Society*. 2020 May;68(5):1056-63.