Knowledge Network in Rural and Remote Dementia Care

Scientific Poster Session
9th Annual Summit

October 25th & 26th, 2016

Healthcare Delivery Across the Continuum for Rural and Remote Seniors with Dementia
### Tuesday October 25th, 2016
Scientific Poster Program
7:00 PM – 9:30 pm at the Western Development Museum (Butler Byers Hall)

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Our Support Group mission is to provide people with dementia, their family members and friends with a safe and supportive environment where they are able to develop meaningful connections, experience a sense of belonging, gain understanding and knowledge, and be empowered to live proactively throughout their journey with dementia.

The Alzheimer Society of Saskatchewan’s Support Groups
Empowering people to live well with dementia

Opportunities for Clients

Caregiver Support Group
For those caring for someone with the disease – spouses, family or friends.

Coffee Club
Maintaining a fulfilling social life is important for people living with dementia and their care partners. The Alzheimer Society of Saskatchewan coordinates a number of Coffee Clubs that provide an opportunity to socialize, share experiences, laugh and enjoy the company of others who understand and are living the dementia experience.

Early Stage Support Group
This group is only attended by the person with dementia (PWD). This ensures that the PWD has a place to speak openly about their struggles with the disease, empower them to learn from each other and have fun in a safe place.

Telehealth Spousal Support Groups
There are 2 Telehealth Support Group serving the province. The Atypical group is intended for spouses of people who have been diagnosed with a form of dementia that is uncommon, diagnosed at a younger age, and does not present like Alzheimer’s disease. The Frontotemporal group is specifically for spouses of those who have been diagnosed with Frontotemporal dementia and its variants.

New and Unique Opportunities

Caregiver Telephone Support Group
There are many parts of Saskatchewan that do not have Alzheimer Society Caregiver Support Group. The Caregiver Telephone Support Group can assist to fill that void for caregivers living in these underserved areas of the province.

“I thought that if I facilitated this group, the families would also help me. I am so thankful for the wonderful advice I gained from many family members over the years. It helped tremendously in learning how to care for people with dementia. They make my day every day!”

Trudy attended the first formal Support Group Facilitator training and is still a Volunteer Facilitator today.

Volunteer Opportunities

Support Mentor Value
ASOS continues to recruit individuals to act as facilitators in communities across the province. There are many communities that could benefit from your knowledge and experience. The ASOS is committed to supporting you as the group is established and will continue to mentor you as the group grows and develops. There are different groups to meet the needs of the communities. Ask one of our Programs and Services staff how you could become involved.
Study 1 INTRODUCTION

**Purpose**
The purpose of the proposed research is to gain a better understanding of current conceptualizations and measurement of positive aspects of caring for persons with dementia.

**Rationale**
- Canadian informal caregivers provide care with a yearly estimated value of $26 billion.
- Caregiver research provides better understanding of the caregiver experience and informs on interventions aimed to support and sustain caregivers in their role.
- Extant literature reveals an emphasis on negative aspects of caregiving (i.e., caregiver burden and strain), with a smaller number of studies investigating positive aspects (i.e., caregiver satisfaction and personal gain).
- By synthesizing extant literature on positive aspects of caregiving, this research aims to (1) understand how positive aspects of caregiving are commonly conceptualized, (2) how these are measured, (3) if/how positive aspects relate to other commonly measured aspects of caregiving (e.g., burden, well-being, severity of dementia), and (4) identify what is known and what is missing.

**Methods: Mixed Meta Synthesis**
- Based on Quantitative research this meta analysis will provide information on:
  - Current conceptualizations of positive aspects
  - Tools of measurement
  - Effect sizes indicating how positive aspects relate to other variables
- Based on Qualitative research, this meta-synthesis will provide information on:
  - Commonalities in caregiver experience
  - Summarizing and combining qualitative evidence surrounding positive aspects of caregiving.

**Synthesis**
Findings from the meta-synthesis inform on effect sizes revealed by meta-analysis.
- The findings from this study are expected to expand the current understanding of the positive aspects of caregiving by synthesizing extant literature from both quantitative and qualitative directions.
- This research is expected to give a clear account of how the positive aspects of caregiving are currently conceptualized,
- how we are measuring these aspects
- what may be missing from current conceptualization and measures.
- These findings will indicate important areas for future research.

Study 2 INTRODUCTION

**Purpose**
Provide insight into experience of important, growing, and understudied population of caregivers in Canada.

**Rationale**
Preliminarly literature review reveals research on Aboriginal caregivers of persons with dementia is remarkably scant.
- The prevalence of age-related dementia continues to rise in the fast growing demographic of Aboriginal seniors.
- Availability of caregivers for Aboriginal seniors with dementia is decreasing as demographics change (youth migrating to urban centres) and community views and values change.

**Methods**
Through connections with the Rural and Remote Memory Clinic of Saskatoon, we will invite Aboriginal caregivers to share with us about their experience providing care.
- Data will be obtained through open ended individual interview.

**Case Study**
By means of open ended interview with two Aboriginal caregivers, this study aims to:
- Provide insight into this understudied population of caregivers.
- Prompt future research into this important and growing population.

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ABSTRACT

The proposed research will explore the intersections of formal and informal care for older adults with a focus on those who provide care. Little attention has been paid to the health and wellness of those who perform care work for older adults living in residential care facilities in rural Alberta. In light of Canada's aging population, challenges with recruiting and retaining rural nurses, and the restructuring of the continuing care system, the challenges experienced by rural care providers are constantly changing.

In an extension of the Principal Investigator's postdoctoral work, the team will conduct case studies using critical ethnography and document analysis methods in order to better understand working conditions for care workers in rural Alberta. The research team will conduct in-depth interviews with paid and unpaid care workers, perform participant observations in the facilities, and analyze related documents. Special attention will be paid to matters of gender, race, socioeconomic status, and other social locations and the ways in which they enable and/or constrain care worker experiences in this rural context. The team will also explore the organization of care work in these facilities and the role of the long-term care (LTC) home in rural communities.

This research will identify LTC priority issues at the macro (policy), meso (health care system), and micro (family and community) levels of care.

BACKGROUND

• In the 1990s, the Alberta's continuing care system was dramatically restructured. With significant shifts towards home care, assisted living, and aging-in-place, the public LTC sector faced sizeable spending cuts.

• Much of the research on elder care in Canada focuses on urban settings. There are fewer LTC facilities in rural regions and a host of rural-specific LTC related issues. Little is known about the current state of rural LTC facilities and the role(s) of these homes in their communities.

• The organization of LTC work is changing across Canada, with RNs doing more administrative work and unregulated workers performing the majority of direct resident care (Armstrong & Baines, 2016).

• LTC facilities are largely viewed and funded as sites of health care service provision and as last resorts for family members who can no longer care for relatives at home. This pilot project, and the larger research program of which it is a part, is designed to explore the notion of "home" in rural LTC facilities. According to Ramp (1999) rural institutions such as hospitals or schools are "more than just ‘facilities’ in a functional sense. They are also cultural signs and symbols" (p. 6). Within the political and economic contexts of seniors' housing in rural Alberta, we will explore what it is like to live and work in LTC.

OBJECTIVES

1) Build a strong and collaborative research team, including community partners and knowledge users. Establish a feedback loop to meet our collective communication needs.
2) Improve understanding of the current state of LTC homes in rural Alberta.
3) Understand the organization of care work and identify the needs of those providing paid and unpaid care within these facilities.
4) Gain insight into the roles LTC homes play within rural communities.
5) Identify challenges in care provision and generate policy and practice recommendations.
6) Identify success stories and develop a knowledge bank of promising practices in rural LTC.
7) Explore opportunities for inter-sectoral collaboration and innovative ways to address LTC residents' social and non-medical needs.
Background

Dementia is recognized as a public health priority; worldwide prevalence of dementia is projected to double to 65.7 million by 2030 (WHO, 2012). Dementia is the top chronic condition prompting relocation to long-term care (LTC) (ADI, 2013) and 60% of Canadian LTC residents have a diagnosis of dementia (CIHI, 2013).

Persons with dementia are at higher risk for malnutrition due to both physiological and behavioral changes. Malnutrition can accelerate cognitive decline, increase risk of negative health outcomes (unwanted weight loss or gain, muscle wasting, infection, poor wound healing, pressure ulcer formation), and negatively impact quality of life.

LTC staff are responsible for developing and executing resident nutritional care plans, monitoring residents' food and fluid intake, encouraging independence and promoting social well-being as it pertains to eating and nourishment. The majority of direct resident care in LTC is performed by care aids who have limited formal training in dementia and nutrition care (Pelletier, 2005).

Research Question and Objectives

Using an evidence-based practice (EBP) framework, what are the best nutrition care practices for LTC residents with dementia from the perspective of care aides?

- Gain experiential knowledge of strategies used to accomplish good nutrition care
- Better understand the challenges experienced by care aides in providing nutrition care for residents with dementia
- Examine differences between urban and rural LTC

Methods

- Qualitative Approach – focus group discussions
- Four LTC homes; 2 rural and 2 urban
- Agreement to participate at Regional level and Administrative level of each LTC home
- RQHR Mealtime Management video shown followed by focus groups
- Set of guiding questions with prompts
- Framework Analysis (Rahlee, 2004)

Impact of Rural Location

<table>
<thead>
<tr>
<th>Impact of Rural Location</th>
<th>Amount of Choice Available</th>
<th>Access to Specialist Care Support</th>
<th>Employment Challenges</th>
<th>Personal Knowledge of Individual Residents/Families</th>
<th>Independent Troubleshooting</th>
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<tbody>
<tr>
<td>Rural LTC</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+/-</td>
</tr>
<tr>
<td>Urban LTC</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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</tbody>
</table>

Research Findings: Thematic Analysis

Balancing Residents’ Care Needs
- Workload often dictates care available
- Priority care need of a given moment a moving target
- Routine or schedule conflict with care plan

Experiential Learning
- Training or studying versus ‘real world’
- Unable to teach every behavior/scenario
- Shadowing and mentoring to achieve proficiency and confidence

Coping Strategies
- Alternate strategies developed to compensate for lacking human resources, knowledge resources, or tools to facilitate nutrition care

Competing Demands
- Between departments
- Amongst staff
- Many residents
- Numerous interactions

Implications for Practice
- Dementia presents diverse and complex nutrition care needs within the LTC context, well recognized by care aides.
- Many opportunities for intervention can be identified from these findings. Enhanced training, greater coordination of nutrition care, supportive supervision, and adaptive mentoring may help to support care aides in performing nutrition care practices.

Participants

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<tr>
<th>Participants</th>
<th>8 focus group discussions, 63 care aides in total</th>
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<tr>
<td>Urban LTC</td>
<td>2 LTC homes, 4 focus group discussions</td>
</tr>
<tr>
<td>Rural LTC</td>
<td>2 LTC homes, 4 focus group discussions</td>
</tr>
<tr>
<td>24 care aide participants 3-5/7/17</td>
<td>19 care aide participants 8-8/17</td>
</tr>
<tr>
<td>Sex: 23 female</td>
<td>Sex: 19 female</td>
</tr>
<tr>
<td>Work Status: 11 full-time</td>
<td>Work Status: 12 full-time</td>
</tr>
<tr>
<td>6 part-time</td>
<td>5 part-time</td>
</tr>
<tr>
<td>3 casual</td>
<td>2 casual</td>
</tr>
<tr>
<td>Continuing Care Assistance Course</td>
<td>Continuing Care Assistance Course</td>
</tr>
<tr>
<td>16 completed</td>
<td>16 completed</td>
</tr>
<tr>
<td>9 not completed</td>
<td>3 not completed</td>
</tr>
<tr>
<td>1 in progress</td>
<td>0 in progress</td>
</tr>
<tr>
<td>Mean length of employment as a care aide</td>
<td>Mean length of employment as a care aide</td>
</tr>
<tr>
<td>11.9 years 30.5 - 83.6</td>
<td>10.8 years 0.5 - 24.0</td>
</tr>
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Acknowledgements

- Alzheimer Society
- Grey Highlands LHIN
- University of Saskatchewan
- Alzheimer Society of Grey-Bruce, LHIN
- Alzheimer Society of Grey-Bruce, KLHIN
- Alzheimer Society of Grey-Bruce, LHIN
Facilitating Decision-Making about Driving Cessation for People with Dementia: Stakeholder Perspectives

Sarah Sanford, PhD, Gary Naglie, MD, FRCP, Holly Tuokko, PhD, Alexander Grizzle, PhD, Isabelle Gelinas, PhD, Patricia Belchior, PhD, Mark Rapoport, MD, FRCP for the CCNA Driving and Dementia Team

Background
Healthcare professionals (HCPs) and representatives of organizations that support persons with dementia and their family caregivers are often responsible for providing support for driving-related issues, such as adapting to changes in mobility, maintaining social participation and coping with emotional responses.

Objectives and Research Questions
We conducted a qualitative study to inform the design of an intervention for drivers and ex-drivers with dementia and their caregivers.

Key questions that guided the research were:
- What strategies help to facilitate the decision-making process around driving cessation for persons with dementia and their caregivers?
- What strategies promote coping and adaptation following the decision to stop driving?

Methods
- The study engaged purposive sampling of key informant participants from two sub-groups across Ontario:
  1) Healthcare professionals (HCPs) that have experience with driving cessation and dementia in their practice;
  2) Stakeholder organizations that represent or provide services to people with dementia and/or their caregivers.
- Semi-structured interviews were conducted in person and over the telephone with 10 HCPs and 6 stakeholders.
- Interviews were transcribed verbatim and entered into NVivo for analysis.
  Each transcript was coded by 2 members of the research team.
- Practices for ensuring quality and transferability of the data included prolonged engagement with the data and the development of an audit trail.
- The analytic themes were generated through an iterative, inductive process.

Support for access to programs, resources and services
- Affordable transportation options and programs that support emotional coping.
- Facilitate access to alternative transportation services by accounting for factors such as socioeconomic status, convenience and restrictive geographical boundaries.

Address driving-related needs in the context of broader experiences of dementia
- Supportive approaches should address driving in combination with other dementia-related needs; revoked driving privileges is one of multiple losses linked to dementia diagnosis.
- Approaches should also account for the specific needs of the individual in relation to the progression of the disease (e.g., declining levels of insight).

Provision of emotional and psychological support
- Practical approaches to dealing with driving cessation are often implemented at the expense of emotion-oriented interventions.
- Participants identified a gap in services to support emotional psychological needs relating to driving.

Balance standardized approaches with individualized interventions
- Approaches should balance access to standardized materials with the flexibility to adapt to meet individual needs based on factors such as the relationship between individual identity and driving, progression of dementia, and social support.

"What of those things, be it a bus, be it a taxi, be it a specialty mobility van service, whatever the case may be that's available in their community: Can they afford it? It's a big problem. For someone on a fixed income that can be very challenging." (HCP, Occupational Therapist)

"It's like a double, a quadrupele wanny. In addition to having to deal with this illness, they're suddenly confronted with their license being taken away." (HCP, Social Worker)

"We focus so much on thinking of alternatives. Learning about what public transportation is available. That doesn't get, at all, at the underlying issues. Because driving, usually, is not just about getting from point A to point B, right? And that's what we're not tuning in to. We need to tune into the meaning of driving for people. And how are we going to deal with that loss?" (Representative of Organization)

Results: Strategies to Facilitate Driving Cessation in Older Adults with Dementia

Results from this qualitative research will be used to design a complex multi-component program that addresses issues related to driving cessation. Key content areas for the intervention derived from this research are:
- Driving and dementia education and awareness raising
- Coping with loss and grief
- Mobility support, community access and social participation
- Identity and meaning preservation
- Adjustment to change

Discussion

Future Research

Co-investigators: M. Bodard, S. Marshall, B. Mazer, F. Mohan, P. Moores, M. Myers, J. Polgar, M. Porter, B. Viklan, S. Yamin for the CCNA Driving and Dementia Team

Acknowledgements: This project was funded by the Canadian Consortium on Neurodegeneration in Aging (CCNA); a dynamic research enterprise of the Canadian Institutes of Health Research (CIHR) and other Funding Partners.

Contact Information: gnelgie@baycrest.org
The Impact of Leadership on Sustainability of a Dementia Specific Training Program in Long-Term Care

Tracy Danylyshen-Laycock, PhD. Candidate, Health Sciences College of Medicine, University of Saskatchewan, Debra Morgan, RN, PhD., College of Medicine, University of Saskatchewan, and Norma Stewart, RN, PhD., College of Nursing, University of Saskatchewan

Introduction

Dementia can cause memory loss, personality changes, and responsive behaviours (Torry, Lynn, & Glass, 2008). Examples of responsive behaviours include: wandering, yelling, or hitting. Responsive behaviours are believed to be an expression of a need, an individual with dementia is responding to something in their environment that is out of their control (Talerico & Evans, 2000).

Care staff are the most frequent recipients of the responsive behaviours (Gates, Fitzwater, & Succop, 2003). Staff need the opportunity to develop specialized skills when caring for individuals with responsive behaviours. A sustainable training program is one of the ways to assist staff in managing responsive behaviours (Eaton, 2003).

Methods

Two studies were conducted simultaneously to examine the relationship between leadership and sustainability.

Study 1 (Retrospective):
Design: cross-sectional, retrospective qualitative research design
Site selection: 5 homes were purposively sampled from rural LTC homes with similar number of residents and where GPA had been implemented in 2009.
Participants: administrators, Directors of Care, Managers, nurses (RNs, RPNs, LPNs, Clinical Nurse Leaders) and NAs.
Data collection:
• Semi-structured interviews (n=14);
• Focus groups (n=6);

Study 2 (Prospective):
Design: prospective longitudinal, multi-site, comparative case study design.
Site selection: 2 homes were purposively sampled based on “comparison of difference” design logic (Fitzgerald & Dopson, 2009) that maximized variation on organizational factors that may influence implementation and sustainability of the GPA program:
• Affiliate vs owned/operated by health region;
• Position of GPA coach (e.g. RN vs NA);
• Presence/absence of Clinical Nurse Leader;
• Similar number of residents.
Data collection:
• Direct observations (14 months);
• Shadowing and informal interviews (6 months);
• Semi-structured interviews with staff in all departments (n=15);
• Document reviews (i.e., nursing progress notes, communication logs, incident reports) beginning three months prior to GPA implementation.

Data Analysis

Study 1 (Retrospective):
Data were analyzed using a qualitative, inductive approach, using the constant comparative method (Glaser & Strauss, 1967, Charmaz, 2006).

Study 2 (Prospective):
I. Within case analysis: inductive, grounded approach, using the constant comparative method to analyze the four types of data from each home
II. Cross case analysis: examined overall patterns for similarities and differences across the 2 homes

Overall conclusions: an interpretive pattern-matching approach was used to compare the patterns of findings between the two studies.

Findings

A continuum of low, medium, and high sustainability homes emerged in the retrospective study. Data confirmed a low sustainability home and a high sustainability home in the prospective study and supported the relationship between leadership and sustainability.

Leaders in the high sustainability homes displayed a greater range of leadership skills, with more frequency and intensity than leaders in the low and medium sustainability homes.

Leaders in the high sustainability homes created a culture where person-centred care was the philosophy of care within the home.

Skills of the leaders in the high sustainability homes included:
• Communicating to staff that GPA is an expectation;
• Keeping staff accountable when they did not practice GPA;
• Working with staff who were “negative” towards the program;
• Addressing barriers that impacted the sustainability of the GPA program.

Conclusions

Prior to the implementation of the GPA program, leaders should assess their organizational culture and their staff members’ readiness for change.

It is important for leaders to 1) address any outstanding barriers to implementation and work with individuals who do not support person-centred care or the GPA program, and 2) create a culture where staff have the flexibility and resources to practice person-centred care.

It is beneficial for leaders to be approachable, visible, and provide feedback on performance as well as mentoring staff who exhibit poor/abusive performance.
**INTRODUCTION**

Purpose

- Examining reliable change and minimal clinically important differences (MCID) in RBANS scores for persons with dementia at a one year interval using Duff's pre-determined regression formulas and Phillip's anchor-based cut-off scores.

Background

- Past literature suggests RCI incorporates reliability in calculation of small but meaningful change in health status over time. RCI offers more insightful clinical interpretations than group-level statistics. RBANS has level of difficulty appropriate for normal older adults through individuals with moderately severe dementia. Development of "normal" regression-based change algorithms allow for broader application. Initial performance on test found to be best predictor of retest performance. Anchor-based methods considered preferred approach.

**METHOD**

- Each of the 53 persons received an interdisciplinary diagnosis of dementia

- Predetermined regression formulas to determine predicted re-test scores for persons with dementia

- Predicted re-test index compared to actual scores

- Regression-based change scores compared to anchor-based cut-offs

- Correlation between RBANS Index scores and Clinical Dementia Rating for utility as an anchor-based measure

**RESULTS**

<table>
<thead>
<tr>
<th>RBANS Index</th>
<th>RCI &amp; MCID Exceeded (%)</th>
<th>RCI Exceeded &amp; MCID Missed (%)</th>
<th>RCI Missed &amp; MCID Exceeded (%)</th>
<th>RCI &amp; MCID Missed (%)</th>
<th>% Agreed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate Memory</td>
<td>16 (30.2)</td>
<td>31 (58.4)</td>
<td>3 (5.7)</td>
<td>3 (5.7)</td>
<td>36%</td>
</tr>
<tr>
<td>Visuospatial</td>
<td>32 (60.3)</td>
<td>11 (20.8)</td>
<td>10 (18.9)</td>
<td>0 (0)</td>
<td>60%</td>
</tr>
<tr>
<td>Language</td>
<td>14 (26.4)</td>
<td>0 (0)</td>
<td>7 (13.2)</td>
<td>32 (60.3)</td>
<td>87%</td>
</tr>
<tr>
<td>Attention</td>
<td>20 (37.7)</td>
<td>0 (0)</td>
<td>17 (32.1)</td>
<td>16 (30.2)</td>
<td>68%</td>
</tr>
<tr>
<td>Delayed Memory</td>
<td>14 (26.4)</td>
<td>10 (18.9)</td>
<td>10 (18.9)</td>
<td>19 (35.8)</td>
<td>62%</td>
</tr>
<tr>
<td>Total Scale</td>
<td>15 (28.3)</td>
<td>31 (58.5)</td>
<td>4 (7.5)</td>
<td>3 (5.7)</td>
<td>34%</td>
</tr>
</tbody>
</table>

**DISCUSSION**

Persons from this sample demonstrated an overall decline beyond expected based on a cognitively healthy older adult sample on all RBANS indices (Mean), but individual variability regarding decline vs stability vs improvement was seen most often on the Language Index. No person with dementia improved on Immediate Memory.

General consistency was identified between Duff and Phillip's meaningful change approach, but immediate memory and total scale score displayed discrepancies.

**Future Directions**

Future research will aim to explore the disagreement between RCI and MCID approaches, and the disparities in participant performance (i.e., improved scores).
### INTRODUCTION

**Purpose**
- To explore the mental wellness needs of two Canadian Aboriginal communities residing in Prince Edward Island (PEI) - Study 1.
- To further understand the importance and implications of researcher-community relations from an insider-outsider perspective - Study 2.
- Surveying the cultural responsiveness of the innovative technologies designed by AGE-WELL to improve quality of life in older adults - Study 3.

**Rationale**
- Research in Indigenous mental health remains highly understudied, leading to concerns in understanding appropriate services to Indigenous communities.
- Research has suggested that racial-ethnic health disparities (e.g., Indigenous health) are partly present due to a lack of trust between patient and healthcare provider, supporting the importance of building trust and strengthening relationships.
- The development of culturally safe, useful technology can only be developed by a cooperative participation with Indigenous end-users and community.

### Method

**This research is in collaboration with the communities’ mental wellness initiative:**

"Completing the Circle of Mental Wellness Care in Prince Edward Island First Nation Communities, Phase 1: Gathering Strength and Knowledge".

**Theoretical Framework:**
- All work in this project has and will be approached through an *Indigenous paradigm* that places emphasis on *relational networks*.

**Study 1: Understanding Communal Needs**
- We aim to explore the community perceived mental wellness needs through *Photovoice*.
- *Photovoice* allows the community to communicate their stories and describe their thoughts through a culturally appropriate modality.

**Study 2: Self-reflective Ethnography on Relations**
- *An ethnographic writing* approach allows us to be sensitive to the influences of indigenous viewpoints, beliefs and practices, behaviours and processes.

**Study 3: Technology & Cultural Responsiveness**
- *Sharing Circles* will be utilized, bringing the communities together to share and explore their impressions towards AGE-WELL technologies.
- Though similar to focus groups, *Sharing Circles* provide sacred meaning in many Indigenous cultures and promote growth and transformation for those involved.

### Partners

- The focus of this project works with Abegweit and Lennox Island First Nations’ communities from PEI:
  - Lennox Island Reservation
  - Scotchfort Reservation
  - Rocky Point Reservation
  - Morell Reservation

- Other partners include:
  - Mi’kmaq Confederacy of PEI
  - Mental Health & Addictions, PEI Dept. of Health
  - Dept. of Health & Wellness, PEI Dept. of Health
  - University of PEI
  - First Nation Inuit Health Branch

### References

Non-canonical amyloid transport by the serotonin transporter mod-5 in *C. elegans*

Kaeli Knudsen, Ryan Heistad, Jennifer N.K. Nyarko, Justine Greer, Carlos E. Carvalho, and Darrell D. Mousseau

Department of Psychiatry, University of Saskatchewan, Saskatoon, S7N 5E2, Canada. Department of Biology, University of Saskatchewan, Saskatoon, S7N 5E2, Canada

Introduction

There are a number of studies that have shown a link between depression and Alzheimer’s disease (AD), where people suffering from depression have a much greater chance at developing AD compared to mentally healthy individuals (Ownby et al., 2006; Meltzer et al, 1998; and Taragano et al, 1997). Several studies have shown that the risk of developing AD varied between depressed patients and actually aligned more with the type of antidepressant drug used to treat the depression (Kessing et al, 2009). The highest risk was associated with the class of antidepressant drugs called selective serotonin reuptake inhibitors (SSRIs), which block the channels that remove serotonin from the synapse. There is a possibility that by inhibiting these channels, β-amyloid (Aβ), a protein that is thought to contribute to the pathology associated to AD may be prevented from leaving the cell. Aggregation may be occurring by some of the protein attaching to the closed channel, allowing accumulation to occur more easily.

Method

To test for the effects of SSRIs on the accumulation of Aβ, we used the *C. elegans* worm. These worms are routinely used to study a variety of pathologies associated with aging and/or neurodegeneration. The *C. elegans* worm does not produce Aβ, so it is a good organism to test how the expression of human Aβ can affect viability, aging, cell death etc. We chose to use two different strains; GMC101 produces the Aβ$_{1-42}$ protein (most often associated with AD) and CL2120 produces an N-truncated variant (Aβ$_{3-42}$) protein, whose role in toxicity is not so clear. Phenotypically, once the worms have Aβ aggregation they appear paralyzed and unresponsive. We tested whether two SSRIs, i.e. fluoxetine or its metabolite norfluoxetine, could alter the rate of paralysis in these two worm strains.

Results

- Different effects are also seen between the CL2120 and GMC101 worms.
- There are differences between the treatments, but increased sample sizes will be required to determine statistical significance.
- We will test a *C. elegans* strain that lacks the mod-5 transporter (the worm analogue of the serotonin transporter). These worms will be crossed with the GMC101 worms. The lack of mod-5 will be the molecular counterpart to pharmacological inhibition of serotonin transport, and will remove any concern about off-target effects of the antidepressant drugs being tested.

Conclusions

Acknowledgments

References


Background

Attention to previous studies of health service use during the periods before and after dementia identification has focused on the volume or frequency of services used, particularly the periods of hospitalization, and whether dementia contributes to increased use when holding other factors constant. However, the brief periods typically examined in these studies (1-3 years) do not adequately account for the long trajectory of the healthcare seeking of some individuals with dementia and their families.

This study examines patterns in health service use among individuals with incident dementia compared to a matched general older adult (GOA) cohort in the 5-year pre-index period leading up to identification and the 5-year post-index period after identification.

Cohort creation

• Data were extracted from 7 provincial administrative health databases linked by a unique anonymized ID number.

• The dementia cohort included individuals 45 years and older at their first-ever recorded identification of dementia (index date) between April 1, 2008 and March 31, 2009. Incident cases satisfied case definition criteria that included ≥1 physician visit OR ≥1 hospitalization OR ≥1 prescription for a cholinesterase inhibitor or Long Term Care (RAHIDIS) Cognitive Performance Scale score of 2 or worse and/or a disease category of AD or other dementia (see Kosteniuk et al. for the criteria and further details in the original study).

• Each individual in the dementia cohort was matched one-to-one with a general older adult (GOA) by propensity score matching on six variables at 5 or prior to index date. The characteristics of the final matched cohorts stratified by the sex matching variables are detailed in Table 1.

Methods

Descriptive statistics were used to examine unadjusted health service use among the matched and unmatched GOA cohorts over a 5-year pre-index and 5-year post-index period relative to dementia identification (index date April 1, 2008).

Since the dementia and GOA cohorts were matched on attributes at index date, negative binomial regression were used to compare matched pairs in post-index differences between the dementia and GOA cohort while controlling for a number of factors. Specifically, models were adjusted for age at index date, sex, 5yr prior Charlton Co-morbidity Index, health region, rural/urban residence, and 5yr prior health service use.

Table 1

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Dementia (N=3,227)</th>
<th>GOA (N=3,227)</th>
<th>p-value for matched cohort comparison</th>
<th>p-value for unmatched cohort comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yr)</td>
<td>44-54</td>
<td>44-54</td>
<td>0.24</td>
<td>0.24</td>
</tr>
<tr>
<td></td>
<td>55-64</td>
<td>55-64</td>
<td>0.69</td>
<td>0.69</td>
</tr>
<tr>
<td></td>
<td>75+</td>
<td>75+</td>
<td>0.10</td>
<td>0.10</td>
</tr>
<tr>
<td>Urban*</td>
<td>64.1%</td>
<td>64.5%</td>
<td>0.80</td>
<td>0.80</td>
</tr>
<tr>
<td>Charlson Flag</td>
<td>4.6 (0.9)</td>
<td>4.6 (0.9)</td>
<td>0.93</td>
<td>0.93</td>
</tr>
<tr>
<td>Diabetes</td>
<td>8.6%</td>
<td>8.7%</td>
<td>0.90</td>
<td>0.90</td>
</tr>
<tr>
<td>Heart Disease</td>
<td>10.7%</td>
<td>11.6%</td>
<td>0.29</td>
<td>0.29</td>
</tr>
<tr>
<td>Stroke</td>
<td>3.0%</td>
<td>3.0%</td>
<td>0.99</td>
<td>0.99</td>
</tr>
<tr>
<td>Cancer</td>
<td>11.6%</td>
<td>11.6%</td>
<td>0.80</td>
<td>0.80</td>
</tr>
<tr>
<td>Pregnancy</td>
<td>7.6%</td>
<td>7.6%</td>
<td>0.99</td>
<td>0.99</td>
</tr>
<tr>
<td>Alcohol</td>
<td>4.6%</td>
<td>4.6%</td>
<td>0.99</td>
<td>0.99</td>
</tr>
<tr>
<td>Admission*</td>
<td>9.0%</td>
<td>9.0%</td>
<td>0.80</td>
<td>0.80</td>
</tr>
<tr>
<td>Region</td>
<td>0.8%</td>
<td>0.8%</td>
<td>0.99</td>
<td>0.99</td>
</tr>
<tr>
<td>Census area</td>
<td>4.6%</td>
<td>4.6%</td>
<td>0.99</td>
<td>0.99</td>
</tr>
<tr>
<td>Area*</td>
<td>6.6%</td>
<td>6.6%</td>
<td>0.99</td>
<td>0.99</td>
</tr>
</tbody>
</table>

*p-values are for separate models of pre-index and post-index period

Conclusions

We observed distinct patterns in the proportion of the dementia cohort using health services:

• The proportion with ≥1 physician visits was relatively stable across the study period, peaking at 1yr pre-index.

• A significantly lower proportion of the dementia than GOA cohort achieved ≥1 specialist visit during the pre-index period, and stabilized post-index to a level similar to pre-index.

• The unadjusted mean number of hospital admissions among the dementia cohort was relatively stable across the study period; there were no significant cohort differences at any point.

• The mean number of hospital admissions was significantly higher among the dementia than GOA cohort at 2y and 3y pre-index, but significantly higher at 1y post-index (p<0.05).

• The adjusted cohort difference in mean number of hospital admissions between the dementia and GOA cohort using health services: was relatively stable across the study period, peaking at 5yr post-index.

• The proportion of the dementia cohort with ≥1 specialist visit was relatively stable across the study period, peaking at 1 yr pre-index.

• The unadjusted mean number of hospital admissions among the dementia cohort increased over the pre-index period, and stabilized post-index to a level similar to pre-index.

• The unadjusted mean number of hospitalizations was greatest at 1yr post-index, with 0.33 more visits among the dementia than GOA cohort (p< 0.01; data not shown).

• The unadjusted mean number of hospitalizations among the dementia cohort was relatively stable over the study period; there were no significant cohort differences at any point.

• The mean number of hospital and long-term care admissions were relatively stable across the study period.

• The greatest difference between the dementia and GOA cohort was in unadjusted average health service use among the dementia cohort:

• The unadjusted mean number of hospital admissions among the dementia cohort was relatively stable across the entire study period.

• The unadjusted mean number of long-term care admissions among the dementia cohort was significantly higher during the post-index period than the pre-index period (p<0.01; data not shown).

Converting patterns in the use of discrete health care services by individuals with dementia in Saskatchewan, Canada: A retrospective matched case-control cohort study of health service use over a 10-year period by individuals with incident dementia in Saskatchewan, Canada.

Julie Kosteniuk1, Debra Morgan2, Beliz Acan Osman3, Jacqueline Quail4, Megan O’Connell5, Andrew Kirk6, Norma Stewart7, Meric Osman3

1 University of Saskatchewan, 2 Saskatchewan Health Quality Council, 3 University of Western Ontario, 4 The Perley & Rideau Veterans’ Health Centre, 5 Kingston General Hospital, 6 University of Ottawa, 7 St. Joseph’s Healthcare Hamilton.

Annals of Long-Term Care 2018; 26:1-13
A Baseline Dementia Care Landscape in Sun Country Health Region

A Report by the Rural Dementia Action Research Team

Phase 1 of a 5-year RaDAR study involved a baseline assessment of gaps and strengths in dementia care best practices across Sun Country Health Region.

The baseline assessment sought the perspectives of regional decision-makers, patients/caregivers, and members of primary health care teams.

**METHODS**

Data collection took place February to September, 2015.

Thirty-two (N = 32) one-on-one telephone interviews were conducted.

Participants:
- 19 of 21 health care providers from 8 PHC teams
- 9 of 11 eligible Steering Group members and PHC Facilitators
- 4 patients/caregivers were recruited by purposive sampling and civic poster

Three separate questionnaires were developed for the present study, informed by the current literature and a previous environmental scan of dementia-related services across Saskatchewan.

Ethics approval was received from the Behavioural Research Ethics Board of the University of Saskatchewan [BEB #14-433, pilot study BEB #14-674].

---

**Rural PHC Dementia Model - Elements**

<table>
<thead>
<tr>
<th>Team-based Care</th>
<th>Decision Support Tools</th>
<th>Specialist-to-Provider Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multidisciplinary team</td>
<td>Standard tools, guidelines</td>
<td>Access to dementia specialist</td>
</tr>
<tr>
<td>Care management</td>
<td>Access to IT Resources</td>
<td>Education sessions</td>
</tr>
<tr>
<td>Education/support for patients</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Primary health care (PHC) team members were asked whether elements of the Rural PHC Dementia Model (above) could be found in their PHC team with respect to patients with dementia (5-point response scale from 1 “agree” to 5 “disagree”).

See graphs for results.

---

**RESULTS**

**PHC Team Members**

Team-based Care

- My PHC team effectively manages patients following a diagnosis of dementia (N = 32)
- My PHC team effectively diagnoses patients with dementia (N = 32)

---

**Strengths**

- Good team communication
- Changes in patients’ behaviour: one-on-one meetings in small communities
- Team-based approach to patient care
- Small size of team allows for regular communication between team members
- Availability of local post-diagnosis resources
- Good family involvement

**Challenges**

- Patient-family resistance to asking help, assessment, further testing, and diagnosis
- Lack of staff training in dementia
- Lack of diagnostic expertise (e.g., difficulty of differential diagnosis)
- Lack of appropriate assessment/diagnostic tools

- "I think we’re good team players. We have a good working relationship between all entities. And we understand each other, I guess. I’m not sure they know where they were the other day when they were out walking."

- "I think we are doing pretty well. We have a good working relationship, but it’s not—we have a small team, you know, and it’s not always easy to it’s not easy to get to know each other better."

- "I think that we as providers aren’t always comfortable being there. We’re not sure that we’re doing the best we can."

- "Sometimes it’s hard for people to understand that they’re not alone. It’s easier for the person themselves or from a spouse or a partner’s situation..."

---

**To access the full report**

Minds in Motion® is a community-based fitness and social activity program that incorporates physical activity and mental stimulation for people with early symptoms of Alzheimer’s disease and other dementias to enjoy with a friend or family member. Pilot took place in Saskatoon from July 2015 – May 2016.

How the program works
A two-hour, weekly program that runs for eight consecutive weeks. The program combines:
- 45-60 minutes of physical activity led by a certified physical activity program leader
- 45-60 minutes of socially stimulating mental activities facilitated by an Alzheimer Society of Saskatchewan program staff and volunteers
- Light, healthy refreshments are provided
- Class sizes are limited in order to accommodate the needs of all participants.

Benefits to the individual with dementia:
- Increased confidence and comfort with their diagnosis
- Inclusion in community
- Improved balance, mobility, flexibility and alerterness

Benefits to the care partner/family/friend:
- Self-care: an opportunity to focus on their own health, rather than focusing exclusively on the needs of the person with dementia
- Pleasure from seeing the person that they care for enjoying themselves
- Mutual support and learning from other care partners

Benefits to both:
- Sharpened mental functioning, sometimes lasting two to three days
- Reduced sense of isolation
- Improved balance, mobility, flexibility, strength and endurance
- Supportive environments which encourage new friendships with others who are living a similar journey

Benefits to volunteers, delivery staff and broader community:
- Increased capacity through exposure, training and learning from one another
- A notable minority mentioned the accommodating nature of the MIM program as a positive (due to participants with vast differences in abilities – both in physical ability and cognitive/functional ability).

Contributors to poster – Wendy Lucyshyn, Minds in Motion Coordinator, Alzheimer Society of Saskatchewan, Dr. Megan O’Connell, Dr. Vanina DalBello-Haas

Thanks to the Alzheimer Society of British Columbia and Alzheimer Society of Manitoba for their support.

This pilot program was made possible by

Community Initiatives Fund
James P. Mahoney
Institute of the Family

Research
Other goals of Minds in Motion include the research conducted by Megan O’Connell, Ph.D and Vanina Dal Bello-Haas, PT, PhD through the University of Saskatchewan. Perceived exertion was collected during each MIM Session’s week 1, week 3, week 5, and week 8 and these data are presented in Table 1. As can be seen, there is considerable between person variability, but, on average, the scale of perceived exertion intensity of perceived exertion (moderate intensity physical activity and exercise for 150 minutes a week is the recommended dose and frequency). Data from Table 1 regarding BORG Perceived Exertion

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Minimum</th>
<th>Maximum</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>BORG Week 1</td>
<td>24</td>
<td>1.00</td>
<td>7.00</td>
<td>4.46</td>
</tr>
<tr>
<td>BORG Week 3</td>
<td>26</td>
<td>1.00</td>
<td>7.00</td>
<td>5.02</td>
</tr>
<tr>
<td>BORG Week 5</td>
<td>19</td>
<td>1.00</td>
<td>7.00</td>
<td>4.98</td>
</tr>
<tr>
<td>BORG Week 8</td>
<td>25</td>
<td>2.00</td>
<td>8.00</td>
<td>5.08</td>
</tr>
</tbody>
</table>

Observational measures of engagement demonstrated high levels of engagement across all observed sessions (see Table 2). These data are notable for their consistency across weeks of the MIM sessions, with consistently high levels of engagement observed in most domains. The expression of pleasure, however, demonstrated more individual variability with most expressing pleasure during the activity.

Table 2. Descriptive statistics (frequency in percentage) of Manorah-Park Engagement Scale based on observations of each participant during exercise across both MIM sessions

<table>
<thead>
<tr>
<th>Domain</th>
<th>Week 1</th>
<th>Week 3</th>
<th>Week 5</th>
<th>Week 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did the targeted activity</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Helped others in not at all</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Helped others – less than ½ of activity</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Helped others – more than ½ of activity</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>4% (n=1)</td>
</tr>
<tr>
<td>Attended to tasks other than the activity</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>More than ½ activity complete</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Reduced sense of isolation</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Improved balance, mobility, flexibility, strength and endurance</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Increased capacity through exposure, training and learning from one another</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Helped others – not at all</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Helped others – less than ½ of activity</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Helped others – more than ½ of activity</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>4% (n=1)</td>
</tr>
<tr>
<td>Acted inappropriately – not at all</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Displayed anxiety – not at all</td>
<td>92%</td>
<td>88%</td>
<td>79%</td>
<td>71%</td>
</tr>
<tr>
<td>Helped others – not at all</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Helped others – less than ½ of activity</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Helped others – more than ½ of activity</td>
<td>8%</td>
<td>8%</td>
<td>16%</td>
<td>25%</td>
</tr>
<tr>
<td>Helped others – not at all</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

All participants were interviewed after they completed week 8 of their first MIM session and data were analyzed thematically. Research data responses via interview include:

**Second most often reported and a recurrent theme throughout other questions about the MIM program was the opportunity for socialization: “really like the individual that are here too.”

Many mentioned the MIM as meeting a social gap in their lives: “and social support from the program that he would not otherwise receive.” A notable minority mentioned the accommodating nature of the MIM program as a positive (due to participants with vast differences in abilities – both in physical ability and cognitive/functional ability).

Many positive comments revolved around the theme of inclusiveness and the ‘non-threatening’ environment:

“This is a program that I would love to see continued as it was a huge benefit to all who participated.”

Many other volunteers and care partners mentioned the exercise portion and the opportunity to “learn from one another. The empathy and understanding without patronizing by the organizer and the volunteers has been exceptional...we surely hope that this great program will continue!”

“…we surely hope that this great program will continue!”
Formative Evaluation of the Outreach Component of the Alzheimer Society of Saskatchewan’s First Link™ Program

Leslie Malloy-Weir1, PhD, Debra Morgan2, PhD, Julie Kosteniuk1, PhD, Joanne Michael3, PhD, Joanne Bracken2, Jim McDavid3, PhD

1University of Saskatchewan, Saskatoon, SK, 2Alzheimer Society of Saskatchewan, Regina, SK, 3University of Victoria, Victoria, BC

Background

First Link™ is an innovative program of the Alzheimer Society that seeks to connect persons with dementia and their caregivers to support services early in the disease process (McAiney, Miller, Stolee, Harvey, & Michael, 2012). Persons with dementia and their caregivers can access this program via any of the following:

- **self-referral** – contact initiated by the person with dementia and/or their caregiver
- **direct referral** – a health professional obtains the patient’s or caregiver’s permission to share their information with the Alzheimer Society
- **instructed referral** – a health professional makes a verbal recommendation to the patient or client to contact the Alzheimer Society on their own.

In 2011, a formal evaluation of the First Link™ program in the province of Saskatchewan found that direct referrals connected persons with dementia and their caregivers to support services 11 months, on average, sooner than self-referrals (McAiney et al., 2012). The number of direct referrals were also found to be lower than expected. This phenomenon has continued despite significant outreach efforts by the Alzheimer Society of Saskatchewan to promote the benefits of referrals to health professionals who diagnose and treat dementia.

**Definition of Outreach**

“Outreach is defined as building partnerships with physicians, health professionals and community service providers to encourage them to proactively refer persons with dementia and their families to the local AS.” (Alzheimer Society of Saskatchewan, 2013, p. 16, original text)

**Objectives of Evaluation**

1. To describe the development and implementation of outreach by the Alzheimer Society of Saskatchewan to health professionals who diagnose and treat dementia (i.e., family physicians, geriatric specialists, nurse practitioners).
2. To determine the extent to which outreach to health professionals that diagnose and treat dementia achieves its intended objective.
3. To determine why direct referrals to the Alzheimer Society have been low from health professionals who have received outreach from the Society.

**Methods**

Using a case study approach (Yin, 2009), we collected and triangulated data from multiple sources: semi-structured interviews with First Link™ Program Staff (n=6), First Link-related documents (n=13), survey of family physicians, geriatric specialists, and nurse practitioners who received outreach from the Society between 2011 and 2015 (n=118), and the number of outreach activities provided by the Society to, and number of referrals made by, family physicians, geriatric specialists, and nurse practitioners between 2011 and 2015. Qualitative data underwent content analysis. Quantitative data were analyzed using descriptive and inferential statistics. Quantitative data were also analyzed using geographic information systems mapping and examined relative to existing epidemiological data (see Figure 3) and regional proportions of residents aged 65 years and older.

**Results**

**Survey of family physicians, geriatric specialists, and nurse practitioners who received outreach:**

We achieved a completed survey response rate of 79%. The response rate was the highest from specialists (100%, n=11/12) and nurse practitioners (99%, n=87/88) and lowest from family physicians (72%, n=64/93). Four of the 118 survey respondents (3%) did not report their profession. Nurse practitioners reported a greater familiarity with the services and supports provided by the Alzheimer Society than specialists and physicians (see Figure 4).

Findings from a focused discussion with physicians, correlational analyses, and Geographic Information Systems mapping will yield additional insights.

**Conclusions**

The preliminary findings suggest that the current outreach strategy could be improved to address the barriers:

- encountered by First Link™ Program staff when doing outreach to family physicians, geriatric specialists, and nurse practitioners
- identified by family physicians, geriatric specialists, and nurse practitioners

**Implications of the Research**

The findings will help the Society to improve its outreach strategy.

**References**

[List of references]

**Acknowledgements**

The authors acknowledge financial support from the Saskatchewan Health Research Foundation, through the Saskatchewan Alzheimer’s Disease Research Network, and from the College of Medicine at the University of Saskatchewan.
Background & Objective

**CHALLENGES IN RURAL/REMOTE DEMENTIA CARE:**
- Fewer highly trained staff & dementia-specific services
- Greater travel distance to specialists in urban centres
- Lack of access to continuing education for health providers

**STUDY OBJECTIVE:** To develop/adapt, implement, and evaluate a Rural Primary Health Care Dementia Model based on 7 elements of comprehensive primary health care for dementia (Aminzadeh et al, 2012) & Canadian consensus guidelines (CCCDTD4)

Methods

- Process evaluation of implementation barriers & facilitators (Consolidated Framework for Implementation Research, Damschroder 2009)

Sun Country Health Region - Saskatchewan

- 58% rural (≤10,000)
- 1.8 persons/km²
- 15% ≥ age 65 years
- 7 primary health care teams
- Starting with one team (Kipling) then scale up

Kipling Primary Health Care Team

- 5 hour drive from Saskatoon (410 km one way)
- 3 family physicians, 1 Nurse Practitioner, 1 Occupational Therapist, 2 Home Care nurses

Regional Steering Group established: 17 meetings to date


Implementing & adapting decision support tools (Primary Care – Dementia Assessment and Treatment Algorithm [PC-DATA] (Seitz, PI) and embedding PC-DATA visit flow sheets in EMR

Implementation enablers & barriers

**INNER SETTING ENABLERS:** team desire to improve care (eg, earlier diagnosis), familiarity with other chronic disease decision tools, availability of multiple disciplines, culture of quality improvement, expertise of EMR technical support to create EMR version of flow sheets that can be scaled up region-wide.

**INNER SETTING BARRIERS:** limited time to meet, challenges in introducing new work processes and tools in busy practice, balancing need for evidence-based tools and quick user-friendly tools

**OUTER SETTING ENABLERS:** regional leadership support, telehealth system

**PROCESS ENABLERS:** strong engagement of champions on team and formal leaders, incremental implementation/adaptation of EMR decision support tools

**PROCESS BARRIERS:** long distance of researchers from team (820 km/round trip)

Conclusions: A participatory approach allows ongoing adaptation in collaboration with community partners. We have identified implementation enablers and barriers that will inform scaling up to other teams in Sun Country Health Region
Are targets of depression-related drugs useful diagnostics for Alzheimer Disease?

Jennifer N.K. Nyarko1; Maa O. Quartey1; Paul R. Pennington1; Glen B. Baker2; Darrell D. Mousseau1.
1: Cell Signalling Laboratory, Department of Psychiatry, University of Saskatchewan; 2: Neurochemical Research Unit, Department of Psychiatry, University of Alberta.

Introduction

Background: Neurons communicate using chemical messengers such as serotonin. These chemical messengers, referred to as neurotransmitters, exert their effects in gaps (synapses) between the cells. Once serotonin has exerted its effect, it can be removed from the synapse by a protein called the serotonin transporter (SERT).

Literature: The gene for SERT has a promoter region that tells the cell how much of the transporter to make. There are two forms (alleles) of the promoter and people have two copies of the SERT gene; one from each parent. A process called genotyping can determine whether an individual has two copies of the short allele (homozygous for s/s), two copies of the long allele (homozygous for l/l) or have one copy each (heterozygous: l/s). The short allele is thought to increase the risk of cognitive decline and Alzheimer’s Disease (AD). The long - or short- allele is thought to increase -or decrease- SERT protein expression. Having a copy of both alleles is thought to lead to intermediate levels of SERT expression.

Research Plan: We analyzed autopsied human brain tissue (from control donors as well as from AD patients) to determine whether a specific SERT genotype aligned with a diagnosis of AD.

Fig. 1: SERT alleles and the Serotonin Synapse

Fig. 2: SERT Genotyping of Human Autopsied Tissue

Genomic DNA was extracted from autopsied cerebellar samples. Standard PCR was used to amplify the region of the SERT promoter that contains the 40 bp sequence (highlighted in red in Fig. 1). The PCR reactions were then visualized under UV light to determine whether the sample contains only the long allele (l/l: 419 bp), the short allele (s/s: 375 bp) or both (l/s).

The distribution of the allelic variants (i.e. s/s, l/s and l/l) was as expected in the control (CTL) autopsied brain samples; however, we did not find a greater proportion of the s/s genotype in the Early-Onset AD (EOAD) or Late-Onset AD (LOAD) samples.

Conclusions:

• SERT genotyping does not correspond to either SERT protein expression or serotonin turnover.

• Differences in the levels of AD-related Aβ and p3 fragments between homozygous (l/l or s/s) and heterozygous (i.e. l/s) individuals could be indicating an unanticipated function for the SERT protein in Aβ peptide transport or plaque formation.

Acknowledgments: DDM is the Saskatchewan Research Chair in Alzheimer’s disease and related dementia that is co-funded by the Alzheimer Society of Saskatchewan and the Saskatchewan Health Research Foundation.
INTRODUCTION
Tele-rehabilitation is a developing field with the promise of increasing the accessibility of specialized interventions such as cognitive rehabilitation. The proposed research will build on previous research examining cognitive rehabilitation delivered in-person to individuals with dementia, remotely delivered interventions for individuals with dementia, as well as remotely delivered cognitive rehabilitation delivered to individuals with TBIs. To date, remotely delivered cognitive rehabilitation for persons with dementia has not been systematically studied.

Study 1

Purpose
- To explore interest in videoconferencing delivered cognitive rehabilitation
- To explore the types of goals that are set by individuals with cognitive impairments
- To compare the clinical characteristics of individuals who responded to a questionnaire asking about cognitive rehabilitation to those who did not

Method
- Participants recruited from University of Saskatchewan’s Rural and Remote Memory Clinic (RRMC)
- 61 clinic patients with diagnoses of aMCI or dementia due to AD and family caregivers invited to participate
- Questionnaires completed by 10 patients and 15 family caregivers
- Everyday Memory Questionnaire (EMQ)

Results
- The responders (N = 25) were similar to non-responders in severity, depression, and caregiver burden
- Of the responders, 80% were interested in videoconferencing developed treatment
- A thematic analysis coded 95% of responses as amenable to cognitive rehabilitation. Participants’ goals were focused on memory, household activities, other cognitive domains, recreation, and higher order tasks

Study 2

Purpose
- Case study

Method
- ‘Alice’ and ‘Andrew’ reported a diagnosis of dementia due to AD.
- Scores < 1st percentile on tests of memory.
- Goal to increase Alice’s knowledge and recollection of major milestones, accomplishments and relationships in her life.
- Alice and Andrew compiled an album with photographs and mementos that represented her highlights.
- Family photos
- Childhood awards
- Diplomas
- Retirement party photos
- Vacation photos
- Ten were chosen, and trained with spaced-retrieval and cuing.

Results

Study 3

Purpose
- To extend previous research that has examined the relationship between IADL, demographic/clinical variables, and cognitive variables including executive function

Method
- 403 consecutive referrals RRMC
- No cognitive impairment (n = 75), MCI (n = 75), dementia due to Alzheimer’s disease (n = 139), or non-AD dementia (n = 114)

Results
- Oral fluency: In step 1, age, education and MMSE - \( R^2 = 0.26, F(3, 247) = 28.62, p < 0.001 \). In step 2, delayed memory, controlled oral fluency (FAS), depression and apathy - \( R^2 = 0.41, F(7, 237) = 23.38, p < 0.001 \) (an additional 14.6% of variance accounted for in FAQ)
- Trail Making Test (TMT-B): The addition of TMT-B, delayed memory, depression and apathy lead to a significant increment in \( R^2 \), and an additional 16.6% of the variance in FAQ was accounted for
- Stroop: The addition of Stroop, delayed memory, depression and apathy lead to a significant increase in \( R^2 \), and an additional 20.1% of the variance in FAQ was accounted for

KEY MESSAGE
Cognitive rehabilitation focused on memory is of most interest to persons and caregivers, and most rural families were interested in videoconferencing. Videoconferenced rehabilitation was similar to in-person rehabilitation. Despite a focus on memory for rehabilitation, executive function appears to have most relation with daily function.
**INTRODUCTION**

Informal caregivers' perception of identity change/loss in their care-partner with dementia is anecdotally linked to loss of intimacy, while decreased intimacy and quality of the caregiver/partner relationship is associated with greater caregiver burden (Blieszner & Shifflett, 1990; Morris et al., 1988). A connection between perceived identity and burden is further implied by the potential benefit of reminiscence therapy for caregivers, and literature on reminiscence (Alea & Bluck, 2007). Despite demonstrated benefit for persons with dementia, support for reminiscence with caregivers has been equivocal, though it is unclear as to why.

<table>
<thead>
<tr>
<th>Study 1</th>
<th>Study 2</th>
<th>Study 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Purpose</strong></td>
<td>To empirically examine the relationship between informal caregivers' perception of identity change in their care-partner with dementia, their relationship, and the perception of burden in providing care</td>
<td>To establish whether equivalency in delivery mode across groups, specifically in-person versus Telehealth delivery via videoconferencing, existed for both the single session reminiscence activity and control conditions, respectively.</td>
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<td></td>
<td>To establish support for the proposed model of identity and caregiver burden</td>
<td>To evaluate efficacy of the reminiscence activity versus the control</td>
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<td></td>
<td>To determine the degree to which the caregiver currently perceives the person with dementia’s identity as changed relative to their premorbid self</td>
<td>To gain insight into participant caregivers’ natural reminiscing behaviors and experience, and also their experience of participating in the facilitated reminiscence activity</td>
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<td><strong>Method</strong></td>
<td><strong>Method</strong></td>
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<tr>
<td></td>
<td>• Cross-sectional correlational design</td>
<td>• 40 informal caregivers recruited from RRMC</td>
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<td></td>
<td>• Recruited 58 participants from the University of Saskatchewan’s Rural and Remote Memory Clinic (RRMC)</td>
<td>• Randomly assigned caregivers to respective in-person or Telehealth, control, or Reminiscence groups (2x2 design)</td>
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<tr>
<td></td>
<td>• Questionnaires:</td>
<td>• 6 DVs measure for 4 groups:</td>
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<tr>
<td></td>
<td>• Zarit Burden Interview (ZBI)</td>
<td>• Perceived identity change measures (SIDQ and identity change rating scale)</td>
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<td></td>
<td>• Change in identity rating scale</td>
<td>• Scores on intimacy measures of closeness and warmth (PAIR and SMD scales)</td>
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<td></td>
<td>• Burns Relationship Satisfaction Scale (BRSS)</td>
<td>• Current relationship quality measure (BRSS scores)</td>
</tr>
<tr>
<td></td>
<td>• Clinical Dementia Rating – Sum of Boxed (CDR-SOB)</td>
<td>• Caregiver burden (ZBI score)</td>
</tr>
<tr>
<td><strong>Results</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **Results** | **Results** | | **References:**


**OBJECTIVES**

One goal of AGE-WELL’s RR ITE: Rural/Remote Indigenous Technology needs Exploration is to assist in the development of AGE-WELL technologies that are relevant to the rural/remote user, information critical to help overcome barriers to the adoption of technologies (Melenhorst, Rogers & Bouwhuis, 2006; Conci, Pianesi & Zancanaro, 2009).

The current study explored the user needs of rural/remote dwelling older adults through brief interview.

**METHOD**

- Participants were recruited from randomly selected telephone numbers (land lines and cell phones) listed for persons residing outside metropolitan areas of SK, and were predominantly rural/remote (most from smaller centers).
- 621 rural/remote seniors were recruited (M age = 71.5; SD = 8.4; range 60-102 years old).
- 463 responded to an open-ended question regarding their ‘worries’ about maintaining independence as they advanced in age, and themes were analyzed.

**RESULTS**

- 31% denied any worries associated with aging.
- 23% reported worries relating to aging in the context of geographic isolation and lack of accessible services.
- 18% reported general anxiety about independence, taking care of their home, and moving into assisted or residential living.
- Remaining categories include:
  - Physical declines in advanced aging (11%)
  - Finances (8%)
  - Neurological or mental health conditions (5%)
  - Physical mobility restrictions (3%)
  - ‘Other’ (2%)

**CITATIONS**


**KEY TAKEAWAY**

These data suggest developing technology that mitigates geographic isolation and increases accessibility of services will be critical for rural/remote seniors.
Unmet Needs of Rural/Remote Older Adults: Opportunities for Technology Development

O’Connell, M. E.¹, Gould, B.¹, Scerbe, A.¹, Morgan, D.¹, Carter, J.¹, Bourassa, C.²,³, Owl, N.², Jacklin, K.⁴, Warry, W.⁵ AG-EWELL HQP

OBJECTIVES

Understanding user needs is fundamental to the development of useful technology.

The user needs of two unique populations are explored in AGE-WELL’s RRITE: Rural/Remote Indigenous Technology needs Exploration.

These older adults are vulnerable due to restricted access to local supports and services (Steel & Lo, 2013; Maar, Seymour, Sanderson & Boesch, 2010).

For the current study, general unmet needs reported by rural/remote dwelling older adults were explored by brief interview.

RESULTS

Most (307) described needed physical assistance due to strength limitations or various medical conditions

66 described needing help using technology (such as turning on a computer, or burning a CD)

fewer mentioned other difficulties, e.g.,
- 12 mentioned limitations due to inability to drive,
- 7 mentioned limitations related to mental health conditions

METHOD

Participants were recruited from randomly selected telephone numbers (land lines and cell phones) listed for persons residing outside metropolitan areas of Saskatchewan, and was predominantly rural/remote (although 10 in the sample were from a small city of 10,500, most were from smaller centers, largest, 5,500). 621 rural/remote seniors were recruited (M age = 71.5; SD = 8.4; range 60-102 years)

Of this sample, 502 seniors responded to an open-ended question regarding a time when they needed assistance, and data were thematically analyzed (with NVIVO for support).

CONCLUSION

These data suggest technology developed to augment physical tasks will be critical for rural/remote seniors, but also highlights the need for intuitive and useable technologies.

CITATIONS


Are all β-amyloid peptides bad?  
*A preliminary investigation*

Maa O. Quartey1; Jennifer N.K. Nyarko1; Paul R. Pennington1; Bradley M. Chaharyn1, Jason Maley2, Glen B. Baker3; Darrell D. Mousseau1

1: Cell Signalling Laboratory, Department of Psychiatry, University of Saskatchewan; 2: Saskatchewan Structural Sciences Center, University of Saskatchewan; 3: Neurochemical Research Unit, Department of Psychiatry, University of Alberta

Introduction/Objective: Studies of Alzheimer disease (AD) brain isolates have revealed that the physiological Aβ(1-40) fragment and the more hydrophobic – and AD-relevant – Aβ(1-42) species accounts for most of the detectable Aβ. There is extensive C-terminal and N-terminal heterogeneity of extracellular Aβ peptides, although their role(s) in AD-related pathology remain unclear, likely because of screens for peptide trends rather than for individual patterns. We chose to examine how the pattern of Aβ species compared in soluble and insoluble fractions from the same source.

Design and Methods: Hippocampal samples obtained from control and AD donors as well as from the ‘J20’ mouse strain that harbors a human double-substituted Swedish/Indiana APP transgene were used to determine Aβ fragmentation patterns in soluble and insoluble fractions. This was done using sequential immunoprecipitation strategies and visualized using Western blotting techniques. We used a cell-free Thioflavin-T (ThT) fluorescence assay, circular dichroism, and surface plasmon resonance to determine the influence of the Aβ(1-38) peptide on the fibrillar behaviour of longer, AD-relevant Aβ species.

Results: In the J20 mice, we observed that higher levels of a smaller Aβ species, which aligns with synthetic Aβ(1-38) in the soluble fraction invariably aligned with little or no Aβ(1-40)/42 in the corresponding insoluble fraction. In the autopsied samples, a similar pattern was revealed; i.e., in AD samples with less Aβ(1-42) in the insoluble fraction, there was more of the smaller, soluble Aβ species (367 377 387). This pattern was more evident in the cortical samples of female AD-donors.

Synthetic Aβ(1-38) and Aβ(1-42) and Aβ(1-43) peptides underwent a conversion to β-sheet structure, as expected, but the rate of β-sheet conversion/ThT binding of the 42- and 43-mers was significantly reduced when these were co-incubated for longer incubation times with 100× lower molar concentrations of Aβ(1-38). Cell mortality associated with the longer, neurotoxic fragments was reversed by Aβ(1-38).

Conclusions: Our data suggest that Aβ(1-38) might be a natural inhibitor of Aβ(1-40) fibrillogenesis and could have significant relevance to regulating the onset of neurotoxicity associated with these longer, more hydrophobic Aβ species in mouse models of AD as well as in the clinical context.

Fig. 2: The detection of the Aβ(1-38) in the soluble fraction aligns with less 40/42-mers in the insoluble fraction.

Fig. 3: Aβ(1-38) alters the ThT binding of the 42-43-mer.

Fig. 4: Secondary structures of Aβ(1-42) and Aβ(1-43) are altered by long-term co-incubation with Aβ(1-38).

Fig. 4: Secondary structures of Aβ(1-42) and Aβ(1-43) are altered by long-term co-incubation with Aβ(1-38).

Fig. 5: Aβ(1-38) reverses the toxicity of the 42-43-mers. Mouse hippocampal HT-22 cells were treated (24 h) with 5 μM of peptides individually or in combination, as indicated, and then monitored for viability. * P<0.05 vs Aβ(1-38).

Acknowledgments: DDM is the Saskatchewan Research Chair in Alzheimer disease and related dementia that is jointly funded by the Alzheimer Society of Saskatchewan and the Saskatchewan Health Research Foundation.

General considerations:

1. ThT and CD and SPR suggest that in the short-term, Aβ peptides act similarly, but when co-incubated for longer periods of time, the Aβ(1-38) peptide tends to mitigate the effects of the longer, more hydrophobic and neurotoxic Aβ peptides.

2. Could this explain the inverse relation between Aβ(1-38) in soluble fractions and Aβ(1-40) or Aβ(1-42) in insoluble fractions of APP mouse and human AD samples?
Introduction
There is a growing need for services for the aging population. Saskatchewan Health is currently addressing the trend of frail elderly frequently visiting Emergency Departments (ED), and increased hospital admissions and stays. There are currently no specific comprehensive geriatric services in the Prince Albert area that address this need in the community before they become an acute ED visit.

Program Goals
- Identify the population of elderly in need of comprehensive/preventative service
- Optimize existing resources in the community to address needs
- Focus on Geriatric Giants in guiding health management
- Maximize patient function and independence as long as possible
- Provide support/education to caregivers
- Reduce risk of hospitalization

Geriatric Assessment Service
(Proposal)
Wendy Quinn RN (NP), MS., NP-C
Yogendree Hammond PharmaD; MBA; BPharm; CDE
Dr. Earle DeCoteau MD FRCP (C); Emeritus Professor, U of S College of Medicine

Program Process
Referral From: MD, NP, Home Care, ED
NP Initial Contact (Phone)
Home Visit by NP - Comprehensive Geriatric Assessment
Pharma D - Medication Therapy
Geriatric Specialist Assessment

Meet Criteria?
- >75
- Pt home bound/difficulty getting to appointments
- High score frailty
- Hx of multiple ED visits
- Goals to have optimal health while living at home

Partnerships:
- PAPHR
- SK Health
- GEM
- PT, OT Services
- Home Care
- Acute Care
- Primary Care
- CADTH

Comprehensive Geriatric Assessment
- Focus on Geriatric Giants
- Comprehensive Medication reviews
- Functional, cognitive and physical assessments
- Inventory of support networks and social involvement

Assessment Tools:
- MMSE
- FAB
- Fall Risk Assessment
- Fulmer SPICES
- KATZ – ADL’s
- Lawton – IADL’s
- FAQ
- Clinical Frailty Scale
- Adapted FAST (Functional Assessment Staging Tool)
- Behaviour AD
- Caregiver Burden Scale

Dr. Yogendree Hammond
Dr. Earle Decoteau, Wendy Quinn RN (NP)
A COLLABORATIVE INTERNATIONAL KNOWLEDGE SYNTHESIS TO UPDATE CLINICAL GUIDELINES FOR PHYSICIANS

INTRODUCTION

In Canada, the Province of Ontario has projected that over 100,000 drivers with dementia will be on the roadway by 2028. Dementia associated with dementia poses a strong risk to the driving population, including memory impairment, poor sensorimotor skills, impaired judgment, reduced cognitive processing time, visual-spatial deficits, etc.

In spite of this, clinicians may be wary of using driving impairment as an aid for diagnosis of dementia. For example, depression, anxiety, loss of self-esteem, impact on patient/relatives’ relationship(s), etc., may lead to under-reporting to transportation authorities.

PURPOSE

Our goal is to synthesize the literature on driving impairment risks posed by dementia.

METHODS

International teams: Experts from Canada, Australia, Belgium, Ireland, the United Kingdom, and the United States.

Specific Research Questions:

1. What is the risk of motor vehicle collisions per year with dementia?

2. What is the risk of driving-related events, as measured on re-classification, in persons with dementia?

3. What is the risk of motor vehicle collisions among persons with dementia?

Selected Articles:

- Jaeke et al. (2009)
- Gao et al. (2013)
- English et al. (2012)
- Study Typic Primary Literature
- Agno Novack
- Dementia: Demographics of any dementia and any type
- Alzheimer's disease: dementia 
- Generalized: any related to number of motor vehicle
- N/A: no published data or not published data
- Study Selection: performed on the basis of systematic screening by two reviewers (the, abstract, and full text screening) followed by data extraction and assessment for risk of bias

PROVIA Flow Chart for Primary Literature

Road Test Failure

<table>
<thead>
<tr>
<th>Study</th>
<th>Subgroup</th>
<th>Demographic</th>
<th>Total</th>
<th>Healthy</th>
<th>Elderly</th>
<th>M-1G, Random, 95% CI</th>
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<tr>
<td>Lincoln (2000)</td>
<td>4</td>
<td>57</td>
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<td>55</td>
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<td>19.73 (9.84, 37.28)</td>
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<tr>
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<td>140</td>
<td>240</td>
<td>5</td>
<td>185</td>
<td>10.77 (10.66, 10.82)</td>
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Crash Risk Outcomes

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Driving Errors

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DISCUSSION & CONCLUSIONS

- We included eight studies between 2005–2015 in the systematic review.
- Drivers with dementia have a three times increased risk of failing a road test compared to healthy controls.
- There were two studies that reported on crash risk in drivers, one of which found no risk to be retrospetively increased and prospectively decreased drivers with dementia.

ACKNOWLEDGEMENTS & REFERENCES

ACKNOWLEDGEMENTS

The authors wish to acknowledge the support of the Canadian Institute of Health Research (CIHR) Knowledge Synthesis Grant #503986, June 2015-May 2016.

REFERENCES

A DRIVING IN DEMENTIA DECISION TOOL: PRELIMINARY ANALYSIS

Mark J Rapoport1, Carla Zucchero Sarracini1, Linda Rozmovits2, Alex Kiss3, Inna Grigoriev4, Rebecca Taylor5, Nathan Herrmann1, Benoit H Mulsant6, Duncan Cameron7, Christopher Frank8, Dallas Setz9, Anna Byszewski10, David Tang-Wai11, Mario Masellis1, Frank Molnar10 and Gary Naglie12

(1) Sunnybrook Health Sciences Centre, Toronto, ON, Canada, (2) Independent practice, Toronto, ON, Canada, (3) Sunnybrook Health Sciences Centre, Toronto, ON, Canada, (4) St. Joseph’s Healthcare Hamilton, Hamilton, ON, Canada, (5) Baycrest, Toronto, ON, Canada, (6) Centre for Addiction and Mental Health, Toronto, ON, Canada, (7) University of Toronto, Toronto, ON, Canada, (8) University of Western Ontario, London, ON, Canada, (9) University of Toronto, Toronto, ON, Canada, (10) Sunnybrook Health Sciences Centre, Toronto, ON, Canada, (11) University of Toronto, Toronto, ON, Canada, (12) Sunnybrook Health Sciences Centre, Toronto, ON, Canada.

METHODS - PART II

Main Findings

Cluster Randomized Controlled Trial of the Decision Tool

- Participants were stratified by gender and randomized
- A parallel group randomized controlled trial was conducted to assess the impact of the online decision tool
- In the experimental version of the tool, participants received an algorithm-based recommendation on whether or not to report their patient to licensing authorities, an educational package for families and pre-printed reporting forms
- In the control version of the tool, participants received only a general reminder about reporting legislation

Quantitative Results as of October 2015

<table>
<thead>
<tr>
<th>Intervention group</th>
<th>30/35 used the tool (57% users)</th>
<th>260 valid uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control group</td>
<td>16/33 used the tool (49% users)</td>
<td>86 valid uses</td>
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The tool did not increase physician reporting of patients with mild dementia or MCI to transportation authorities, beyond the effects of caregiver concern and clock drawing abnormalities.

- More women than men recommended reporting patients with minor dementia to transportation authorities.
- In multivariate analysis, abnormal clock drawing (OR 10.6, 95% CI 5.0-22.5, p<0.0001) predicted per-protocol reporting.
- In post-RCT interviews, 80% of participants agreed the tool was easy to use, 90% said it would be easy to share in daily practice, and 80% said it would increase per-protocol reports from 13% to 23%.

DISCUSSION

Future Directions

- Consider ways to engage family physicians, who may benefit most from the Decision Tool
- Explore the tool in other clinical settings
- Address the challenge of encouraging tool use and integrating the tool into daily workflows
- Address the issue of training family physicians about reporting legislation in individuals with mild dementia and MCI

ACKNOWLEDGEMENTS

Fundings for this work was provided by the Canadian Institutes of Health Research (CIHR) Knowledge Synthesis Grant #KDNL0986, June 1, 2010 to May 30, 2015.

INTRODUCTION

- Estimate of 1.1 million older adults with dementia in Canada by 2031
- Crude rates in dementia increase at 2-2.5% per year in older adults
- Between 22% and 45% of patients with dementia continue to drive
- Phased implementation of mandatory reporting legislation in 9 provinces
- Our novel Driving and Dementia in Ontario (DADIO) study used a modified Delphi process to obtain expert consensus on which patients with mild dementia or mild cognitive impairment (MCI) should be reported
- Dementia experts reviewed 26 hypothetical case scenarios over 5 iterations to identify the criteria for reporting

METHODS - PART I

Development of the Decision Tool

- A variety of approaches were used to develop the Driving in Dementia Decision Tool:
  - Systematic literature and policy review
  - Delphi expert opinion from the DADIO study
  - Interview, focus group with physicians, family caregivers of persons with dementia and transportation authorities
- A computerized decision support tool was developed:
  - The tool produces a recommendation for reporting patients with mild dementia or MCI to transportation authorities.
  - Recommendations are:
    - Do Not Report
    - Non-Consensus
  - The tool includes an educational resource package for the person with dementia or MCI and family caregiver, as well as customized reporting forms for the physician to use
- Quantitative analysis assessed participants’ reporting decisions relative to “expert” decision (as determined by the DADIO Delphi algorithm), as well as whether or not they recommended a specialist road test for their patient
- Qualitative analysis of post-RCT interviews examined participants’ experiences using the decision tool, the impact of the tool on workflow, and the doctor-patient relationship
- Sample size calculation was based on an expected base reporting rate of 23% in family physicians, and an estimated 10% difference between control and intervention groups (i.e., the tool would increase per-protocol reports from 13% to 23%)

METHODS - PART II

Cluster Randomized Controlled Trial of the Decision Tool

- Participants were stratified by gender and randomized
- A parallel group randomized controlled trial was conducted to assess the impact of the online decision tool
- In the experimental version of the tool, participants received an algorithm-based recommendation on whether or not to report their patient to licensing authorities, an educational package for families and pre-printed reporting forms
- In the control version of the tool, participants received only a general reminder about reporting legislation

Quantitative Results as of October 2015

<table>
<thead>
<tr>
<th>Intervention group</th>
<th>30/35 used the tool (57% users)</th>
<th>260 valid uses</th>
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<tbody>
<tr>
<td>Control group</td>
<td>16/33 used the tool (49% users)</td>
<td>86 valid uses</td>
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The tool did not increase physician reporting of patients with mild dementia or MCI to transportation authorities, beyond the effects of caregiver concern and clock drawing abnormalities.

- More women than men recommended reporting patients with minor dementia to transportation authorities.
- In multivariate analysis, abnormal clock drawing (OR 10.6, 95% CI 5.0-22.5, p<0.0001) predicted per-protocol reporting.
- In post-RCT interviews, 80% of participants agreed the tool was easy to use, 90% said it would be easy to share in daily practice, and 80% said it would increase per-protocol reports from 13% to 23%.

DISCUSSION

Future Directions

- Consider ways to engage family physicians, who may benefit most from the Decision Tool
- Explore the tool in other clinical settings
- Address the challenge of encouraging tool use and integrating the tool into daily workflows
- Address the issue of training family physicians about reporting legislation in individuals with mild dementia and MCI

ACKNOWLEDGEMENTS

Fundings for this work was provided by the Canadian Institutes of Health Research (CIHR) Knowledge Synthesis Grant #KDNL0986, June 1, 2010 to May 30, 2015.
INTRODUCTION

- Timely dementia diagnosis → crucial for treatment and care management.
- Symptoms → difficult to detect.
- Primary care providers → in regular contact with individuals with dementia.

Barriers to diagnosis:
- Negative attitudes toward specialist referrals.
- Perceived limited treatment options.
- Negative anticipated outcomes from disclosure.
- Perception of dementia as accepted part of growing older.

Unique challenges in rural areas:
- Work isolation.
- Less access to specialists.
- Inadequately staffed programs.
- Long wait times for services.
- Long distances to specialized programs.
- Fewer educational resources.
- Varied levels of dementia education by profession, and role.
- Varied preferred modes of delivery of remote education.

STUDY RATIONALE

- Saskatchewan = large senior population that is rising.
- Rural area health professionals struggle with added pressures associated with practice in rural areas.
- Need for a process that would ease diagnostic uncertainty and enhance timely diagnosis.
- Need to research existing modes of continued education to determine the best mode of delivery on training, diagnosis, and management.
- Present research entails work with rural Primary Health Care Teams (PHC teams) located in Sun Country Health Region. We plan to utilize participatory action research to enhance team participation.

OBJECTIVES

- (1) Examine existing educational programs to understand what has been done up to date.
- (2) Evaluate educational needs of PHC members and their preferences for education delivery as well as barriers to best practice.
- (4) Delivery of program associated materials via smart phone application.

PROJECTS

Project 1
- Scoping review of existing modes of delivery for remote continued education.
- Will serve to inform future work.
- Qualitative data analysis.

Project 2
- Exploration of preferred modes of educational delivery, perceived barriers, and search for the most effective method of implementation.
- Interviews with PHC members.
- Qualitative analysis.

Project 3
- Delivery of program materials via mobile application (iEpi).
- Implementation of Spaced Education delivery to enhance knowledge retention.
- Implementation will be determined by the PHC teams.

*References*:
Mapping a Pain Strategy for Saskatchewan: findings from stakeholder consultations
Susan Tupper, PT, PhD1,2, Glen-mary Christopher, RN, BN, BA3, Karen Juckes, RN, MN, PhD (student)2,4, Krista Baerg, BSN, BA, MD, BScMed, FRCP1,2
1. Saskatoon Health Region, 2. University of Saskatchewan, 3. Sunrise Health Region, 4. Regina Qu'Appelle Health Region

Overview
Saskatchewan stakeholders were consulted to identify opportunities and barriers for development and implementation of a provincial pain strategy. Actionable future work has been structured around the following four foci of change.

Consultation Methods and Findings
Saskatchewan stakeholders were consulted to identify opportunities and barriers for development and implementation of a provincial pain strategy. Actionable future work has been structured around the following four foci of change.

Consultation Methods
- Online Survey
- Interviews and Focus Groups
- Facilitated Large-Group Meetings

Future Work
- Identify leads for 4 working groups
- Organize working group meetings for upcoming pain conference in Regina, November 2016.

Saskatchewan Context
- Provincial Population
  - Population of 1.14 million.
  - 40% resides in two larger urban centers.
  - 28% resides in rural and remote locations.

- Current Specialty Pain Services
  - Limited, primarily uni-disciplinary, clustered in urban centers.

Canadian Pain in Saskatchewan
- Ministry of Health provides oversight and strategic direction to 13 provincial health regions.
- Ministry priorities for 2015-16
- Mental health and addictions
- Seniors care
- Appropriateness of care
- Emergency department waits.

Healthcare in Saskatchewan
- Ministry of Health provides oversight and strategic direction to 13 provincial health regions.
- Ministry priorities for 2015-16
- Mental health and addictions
- Seniors care
- Appropriateness of care
- Emergency department waits.

Online Survey
- Primary care physicians and nurse practitioners (n=48; 24% response rate) in the Saskatoon Health Region.
- Opinions of existing services for chronic pain
- Priorities for new programming
- Perceived barriers to care for clients with chronic pain.

Participants
- Characteristics
  - Years of practice: Median 11-15 years
  - Urban: 14%
  - Rural and remote: 12%
  - Group practice: 72%
  - Practice setting: Private office 51%
  - Primary health center: 36%

Findings
- High proportions unaware of or did not refer clients to available pain services.
- Interventions: Pain Clinic 49%
- LiveWell with Chronic Pain 57%
- Medication Assessment Center 79%

Perceived Barriers to Care
- Barriers identified include:
  - Inconsistent provider approach to pain assessment and management in acute care, long-term care, and primary care.
  - Lack of specialty pain services and coordination of care, particularly for those with complex pain conditions.
  - Lack of healthcare provider and client/family awareness of existing services.

Five action categories for future improvement work:
- Prevention and Early Intervention
- Research and data needs
- Structures and Resource Needs:
- Processes:
- Outcome monitoring.

Acknowledgements
This work has been primarily led by The Saskatchewan Registered Nurses’ Association (SRNA) Pain Management Professional Practice Group members. Facilitated large-group meetings were supported by the Sask. College of Physicans and Surgeons of Saskatchewan, and the Canadian Pain Coalition. Special thanks to Malia Knudtson, executive director of Pacific and Yukon Chapter, for presenting at and participating in the facilitated group meetings.

Contact: susan.tupper@usask.ca

Facilitated Large-Group Meetings
Two large-group facilitated meetings were held during a pain conference in Saskatoon in November 2014. Participants (n=147) represented 7 health regions:
- Client/family advocates
- Multidisciplinary healthcare providers
- Healthcare administrators
- Non-governmental organizations
- Health professional associations
- Provincial Ministry of Health
- Academic institutions

Perceived Barriers to Care
- Barriers identified include:
  - Inconsistent provider approach to pain assessment and management in acute care, long-term care, and primary care.
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Development of a brief education series for healthcare providers: Understanding, Assessing and Managing Pain in Older Adults

Tupper SM1,2, Bareham J3, Danylyshen-Laycock T1,2, Bergen A2
1. University of Saskatchewan, 2. Saskatoon Health Region, 3. RxFiles – Long Term Care Project

**INTRODUCTION**

Pain in older adults is often underestimated, incorrectly assessed, and under-managed [1]. The majority of older adults live with pain on a regular basis, with reported rates of chronic pain of 60–80% among those living in residential care [2]. Pain interferes with physical and cognitive function, and contributes to loss of independence [2]. In part pain under-management stems from misconceptions about pain and challenges with assessment and management of pain, particularly for those with dementia or other cognitive or communication impairments [3]. On average, clinicians have low knowledge and confidence to assess and provide pain management in this population [4]. There was a need for pain education opportunities that could be readily implemented at the point-of-care that could be used to remind staff about best practices for pain assessment and management.

We developed a series of 13 brief education videos for staff on different aspects of pain. We will evaluate the impact of the videos on staff knowledge and confidence to provide care for the older adult population.

**VIDEO FORMAT**

Videos range in length from 5 to 10 minutes, and consist of narration or video demonstrations of skills. Videos will be publicly available on YouTube. There are 3 quiz questions at the end of each video to test viewers’ knowledge. Links to references and additional resources are provided.

**VIDEO SESSION TITLES**

1. Misconceptions about pain in older adults
2. Types of pain
3. The language of pain
4. Pain assessment overview
5. Self report of pain
6. Behavioral pain assessment
7. 4 P’s of pain management
8. Principles of pharmaceutical treatment
9. Medications for nociceptive pain
10. Medications for neuropathic pain
11. Physical treatment strategies
12. Psychological treatment strategies
13. Prevention strategies

**REFERENCES**


**PURPOSE**

We developed a series of 13 brief education videos for staff on different aspects of pain. We will evaluate the impact of the videos on staff knowledge and confidence to provide care for the older adult population.

**VIDEO DEVELOPMENT PROCESS**

A core development team consisting of a physical therapist and pain consultant (ST), behavioral consultant and social worker (TDL), nurse and manager of Seniors’ Health and Continuing Care (AB), and pharmacist and academic detailer (JB) held regular meetings between April 2014 and October 2015 to develop content for the videos based on best practice literature. Once a draft script was developed, reviewers were asked to provide feedback and recommend content changes. Reviewers included nurse educators, a geriatric psychologist, client/family advisors, inter-professional practice leads, a professor of psychology, and the director of Interprofessional Practice, Education and Research.

A grant was provided by the RUH Foundation to professionally develop the videos with the Media Production department at the University of Saskatchewan. Preliminary video editing was conducted from June to August 2016. Videos are currently being re-edited and finalized. Completion is expected for January 2017.

**EVALUATION PLAN**

A randomized controlled trial will be used to compare viewers’ knowledge and confidence to provide care between an attention control and two intervention arms who watch 4 of the video series (Group 1: sessions 1, 2, 3, 4; Group 2: sessions 5, 7, 8, 11). We will recruit nursing students and nurses (registered and licensed practical nurses) from acute care facilities and long-term care homes and compare change in knowledge using two validated pain knowledge tools. The control group will be provided links to the videos following the study.

**ACKNOWLEDGEMENTS**

We gratefully acknowledge the generous support from donors to the RUH Foundation for the grant that supported professional video development. Thank you to Mark Behrend from the Media Production department at the University of Saskatchewan, volunteer actors Joan Claassen, George Epp, Barb Froese, and Cameron Nicole, and many reviewers for their valuable contributions.
Improving rural dementia diagnosis: Implementing remote specialist-to-PHC provider support

J. Ursenbach1 & M. E. O’Connell1

1 Department of Psychology, University of Saskatchewan

Introduction

Purpose

Improve timely diagnosis of patients with dementia in rural/remote areas by developing, implementing, and evaluating a technology-based platform that connects urban dementia specialists with rural primary healthcare (PHC) providers.

Rationale

• 564,000 Canadians live with dementia, placing a significant burden on informal caregivers, and costing Canadians $10.4 billion annually.1
• Timely diagnosis improves patient quality of life2, while late diagnosis is associated with hospitalization and premature long-term care placement.3,4
• Lack of availability of specialists and resources in rural areas leaves burden of diagnosis on primary healthcare (PHC) providers, who often lack dementia-specific training.5
• Geographic, financial, and time issues may prohibit rural patients from seeking care in urban centers.6
• Preliminary research suggests telehealth neuropsychological assessments are valid and well-tolerated, and may have diagnostic utility.5
• Canadian Longitudinal Study on Aging (CLSA) developed and gathered normative data on a telephone-administered neuropsychological instrument.
• Computer Assisted Mild Cognitive Impairment (CAMCI) is a reliable and valid automated cognitive assessment instrument which may influence PHC provider’s care decisions.7

Proposed Research

Study 1: Validation of CAMCI with RRMC patients

Determine the validity and feasibility of CAMCI battery with rural/remote patient population.
• Recruit RRMC patients to complete CAMCI battery.
• Document how well tolerated the CAMCI is in this population.
• Document the convergent and discriminant validity of the CAMCI battery in this population.

Study 2: Implementation of remote specialist-to-PHC provider support program.

Establish a platform to remotely administer CLSA telephone battery and CAMCI digital battery to patients with suspected cognitive impairment in rural/remote areas.
• Rural PHC providers will invite patients to complete CAMCI battery
• Patients will be contacted by telephone and administered CLSA battery
• Test results will be interpreted for PHC providers.

Study 3: Evaluation of CAMCI and CLSA feedback on PHC providers’ treatment decisions

Determine extent to which remote specialist-to-PHC provider platform influenced delivery of healthcare.
• Review electronic medical records (EMR) of patients in Study 2.
• Code treatment decisions influenced by CAMCI or CLSA results.
• Interview PHC providers; qualitative analysis of responses.

Implications

• Remote specialist-to-PHC provider support will improve diagnosis of dementia in rural areas.
• Early diagnosis reduces number of rural dementia patients that enter long-term care prematurely, saving associated costs.
• Improve quality of life of informal caregivers, who use diagnostic information to tap appropriate resources and prognostic information to plan accordingly.

These research programs work best when we work together. We would love to hear your thoughts!
Predicting cognitive decline after TIA with diffusion tensor imaging and texture analysis of normal appearing white matter

Ursenbach, J.1,2, Campeau, S.1,2, Tariq, S.1,2, Carlson, H.L.3,4,5, Coutts, S.1,6 & Barber P.A.1,6

1Calgary Stroke Program, Department of Clinical Neurosciences, University of Calgary, 2Seaman Family MR Center, 3Alberta Children’s Hospital Research Institute, 4Calgary Pediatric Stroke Program, 5Departments of Pediatrics and Clinical Neurosciences, University of Calgary, 6Hotchkiss Brain Institute

Introduction
- Patients with transient ischemic attack (TIA) have an elevated risk of recurrent strokes, cognitive decline, and neurodegenerative disorders, including a 4-fold risk of developing dementia later in life.1
- This provides a population for identifying biomarkers of incipient disease processes.
- Fractional anisotropy (FA), a diffusion tensor imaging (DTI) derived parameter, detects changes in white matter (WM) integrity evident in patients with Alzheimer’s disease (AD) and vascular dementia.2
- Grey level co-occurrence matrix (GLCM) based texture analysis (TA) of WM in T1 weighted MR images distinguishes patients with AD from healthy controls.
- Medial temporal lobes (MDTL) are implicated in cognitive processes such as episodic memory.

Hypothesis: longitudinal changes in GLCM and FA parameters in MDTL will be associated with a decline in episodic memory in TIA patients.

Methods
- 86 TIA/minor stroke patients were recruited acutely from Extended CATCH study.
- DTI acquired using 14 non-collinear diffusion encoded scanning directions with a slice thickness of 3.5mm.
- FLAIR images were acquired with a slice thickness of 3.5mm.
- Serial MR imaging at 48H, 18M, 3Y; serial cognitive assessments at 90D, 1Y, 2Y, 3Y.
- WAIS IV Digit Symbol Coding: psychomotor processing speed
- Trail Making Test Part B: Executive function
- Controlled Oral Word Association Task: Speeded lexical fluency and language function
- California Verbal Learning Test: Verbal learning and episodic memory.
- Rey-Ostermer Complex Figure Task: Episodic memory and visuospatial function.
- DTI and T2-weighted FLAIR images preprocessed with Freesurfer & FMRIB software library (FSL).

Results
- Regions of interest were drawn bilaterally in normal appearing WM in MDTL (Figure 1A).
- GLCM parameter angular second moment (ASM) used to quantify texture homogeneity in T2 FLAIR image; computed via GLCM texture analysis utility in ImageJ (Figure 1B).
- Random intercept linear mixed effects regression (LMER) models were used to model change in FA and ASM, age included as covariate to control for natural age-related decline documented in FA4, and suspected in ASM.

Hypothesis: longitudinal changes in GLCM and FA parameters in MDTL will be associated with a decline in episodic memory in TIA patients.

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Results
- Significant decline in MDTL Left FA after controlling for age (Figure 2).
  - Baseline to 2Y, t(155.9) = -3.44, p < .001
  - Baseline to 3Y, t(157.3) = -3.69, p < .001
  - Marginally significant decline in MDTL right FA at 3Y:
    - Baseline to 3Y, t(156.2) = -1.76, p = .080
    - Decline in FA due to greater water diffusion perpendicular to white matter tracts, considered to be due to demyelination3.
    - Marginally significant increase in bilateral MDTL ASM (Figure 3):
      - Left: Baseline to 3Y, t(162.6) = 1.73, p = .087
      - Right: Baseline to 3Y, t(163.8) = 1.72, p = .087
    - Significant decline in bilateral MDTL ASM with age for both right and left sides (Table):
      - Controlled Oral Word Association Test: Speeded lexical fluency and language function
      - California Verbal Learning Test: Verbal learning and episodic memory.
      - Rey-Ostermer Complex Figure Task: Episodic memory and visuospatial function.

Discussion
- Decline in FA indicates loss of WM integrity in the left MDTL in the three years following TIA2.
- May be marker of incipient disease process.
- Interpretation supported by evidence that declining FA values are associated with poorer cognitive performance in tasks of executive function, verbal learning, visuospatial function, and episodic memory.
- Rising ASM values indicative of increasing tissue homogeneity; marginally significant increase could be evidence of vascular recovery after TIA7.
- Study limited by use of the same cognitive battery at each assessment, leading many participants to demonstrate practice effects (improvement over time). Such effects may mask change in cognitive ability.
- No control group limits understanding of natural variation in MRI and cognitive measures.

Conclusions
- FA of the left MDTL normal appearing white matter may be a robust biomarker of cognitive decline after TIA, however future research needed to delineate etiology of change (ie. vascular vs. neurodegenerative disease processes)
- ASM was not a robust predictor of cognitive function in this study, however future research to determine optimal image resolution and GLCM step size may improve prediction.

References

Acknowledgements
The authors would like to thank the Heart and Stroke Foundation for the funding.
Correspondence: ursenbac@ucalgary.ca or pabarber@ucalgary.ca

Table
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<th>Digit Symbol Coding</th>
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<tbody>
<tr>
<td>Baseline to 3Y</td>
<td>t(156) = 1.76, p = 0.080</td>
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Figure 2: Change in MDTL normal appearing WM FA over 3 years: MDTL left FA marginally significantly declined from BL to Y3.*

Figure 3: Change in MDTL normal appearing WM ASM over 3 years: marginally significant bilateral increase from BL to Y3.

Table: Results of linear mixed effects regression models predicting cognitive scores with bilateral FA and ASM parameters while controlling for time and age. Lower FA values in the MDTL left correspond to poorer performance on tasks of executive function, visuospatial function, verbal learning, and episodic memory.

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Figure 1A: ROIs drawn bilaterally in normal appearing WM in MDTL

Figure 1B: Example of grey level variation in T2 FLAIR image quantified by ASM parameter.
The “Worried Well”: Characteristics of the Cognitively Normal Patient Presenting to a Rural and Remote Memory Clinic

Ryan Verity1, Andrew Kirk2, Chandima Karunanayake3, Debra Morgan2

1 - College of Medicine, University of Saskatchewan, 2 - Division of Neurology, University of Saskatchewan, 3 - Canadian Centre for Health and Safety in Agriculture

Introduction

As the prevalence of dementia continues to increase so does the number of patients presenting to their primary care physicians with memory complaints (1). With people increasingly aware of dementia, a new trend has been developing in memory clinics: the “worried well” (2). This refers to patients who are worried they have dementia, but are in fact neurologically normal (2).

Memory concerns from patients are subjective, and may be influenced by the psychologic and environmental factors, like exposure to dementia (3). The MEM Self-Rating Memory Score is used to evaluate patient’s perceived memory concerns, and therefore provide insight into subjective cognitive impairment. Repeat MMSE scores can be an important part of evaluating trends in cognitive ability over time (7). Aside from SCD, other risk factors for dementia may include lower education levels, sleep concerns, and psychiatric illness (8-11). Depression has also been implicated as a risk factor for memory concerns, as patients with mild cognitive impairment who also have depression are twice as likely to develop Alzheimer’s disease (11). The CES-D is a screening tool used to evaluate depression, an important piece of information to have in memory patients (12).

The objective of the present study is to identify features of “worried well” patients to better identify those more likely to be cognitively normal. It may be that by better identifying those at lower risk of having dementia or neurologic disease we can better prioritize specialist referrals and patient resources (2,14). This is a particular challenge in rural areas (14).

Methods

375 consecutive patients seen at a rural and remote memory clinic between March 2004 and October 2015 were included in this analysis. The data collected includes: age, sex, years of formal education, MMSE score from the initial RMMC visits, CES-D depression scores, MEM memory self-rating memory scale, alcohol consumption, marital status, hours per week of work, past medical history, sleep concerns, possession of a driver’s license, and information on a family history of neurologic illness (6-9). Depression was also significantly different between the two groups. The “normal” and “Alzheimer’s Disease” groups had higher CES-D depression screening scores. The full comparison between the “normal” and “Alzheimer’s Disease” groups is detailed in Table 2.

375 patients who underwent an initial clinical assessment and received a neurologic diagnosis were included in this analysis. When comparing the “normal” (N=81) and the “other” group (N=294), age was significantly lower in the “normal” group (Table 1). Other significant differences included more formal education in the “normal” group, and higher MMSE scores in the “normal” group (Table 1). Self-reported memory concerns (MEM score) showed no difference between the “normal” and the “other” group. There was no statistically significant difference in self-reported family history or memory concerns or dementia between these two groups. There was a significant difference between self-reported previous history of psychiatric or psychologic problems, with the “normal” group more frequently having a previous diagnosis or problem. In association with that, the “normal” group also had a significantly higher CES-D depression screening score. The full comparison between the “normal” and “other” group is presented in Table 1.

We found that the cognitively normal patients tended to have more years of formal education. The cognitively-normal patients were also more likely to be working part-time or more. Alcohol intake was also significantly different between the two groups. The “Alzheimer’s Disease” group had significantly lower alcohol intake compared to the “normal” group.

Overall, we begin to see a pattern of differences unfold between the “worried well” patients and those with cognitive disease. By better identifying the “worried well” we can make better use of resources, like specialist referrals, and improve patient care by providing appropriate management aimed at the underlying cause of the concern.

Conclusion

With over 20% of patients at the RMMC being diagnosed as cognitively normal, we have a fair sample size to assess differences. Of the many significant differences between the cognitively normal and other groups, and MMSE stands out as a highly valuable clinical indicator. Alzheimer’s disease classically presents later in life, and statistically most of the “worried well” patients were in their early sixties. There was a significant difference in age between the normal” or “worried well” group and both the “other” group and the “Alzheimer’s Disease” group.

It is interesting to note the significant difference between CES-D depression screening scores in the “normal” and both the “other” and “Alzheimer’s Disease” groups. It is essential to evaluate mood and mental health when discussing memory concerns with patients.

Citations

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