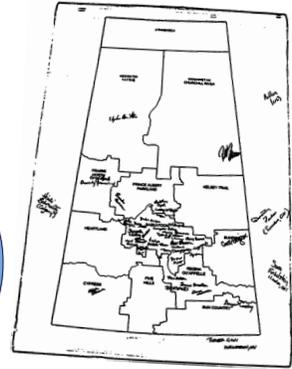


Knowledge Network in Rural and Remote Dementia Care

Summit 8



Healthcare Delivery Across the Continuum for Rural and Remote Seniors with Dementia

Scientific Poster Session 8th Annual Summit

October 27th & 28th, 2015



Tuesday October 27th, 2015
Scientific Poster Program
7:00 PM – 10:00 PM at the Sheraton Cavalier (South & West Rooms)

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Cognitive Health: Rural Older Adults' Perspectives

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OBJECTIVE

Objective

- To examine older adults' perceptions of cognitive health within the cultural context of rural Saskatchewan, Canada.

Rationale

- Growing recognition that cognitive health should not be defined merely as the absence of dementia and related diseases¹.
- Existing literature on cognitive health perceptions focuses predominantly on dementia care and health service delivery for those with dementia².
- With the exception of Wu and colleagues³, there is limited research on cognitive health perceptions among healthy rural seniors without dementia.
- Rural barriers to early dementia diagnosis may include lack of education, stigma, financial challenges, transportation issues and limited health and support services.
- Research on rural seniors' perceptions of cognitive health is critical to supporting dementia awareness and early diagnosis in rural areas.

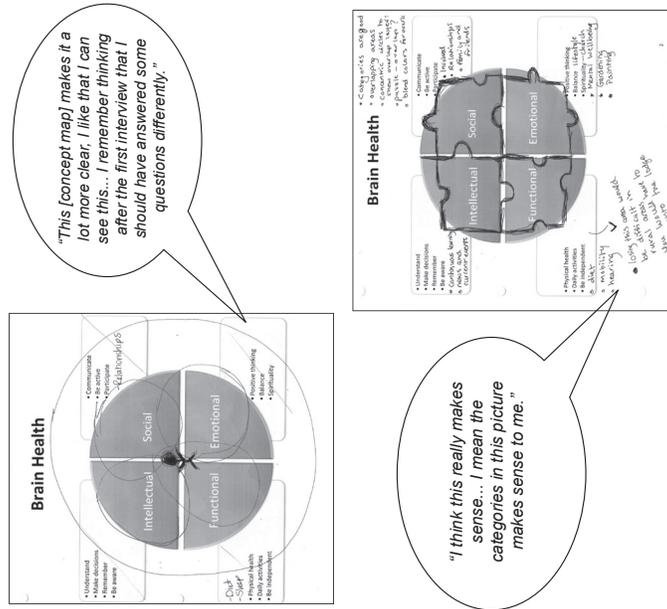
METHODS

- Using an ethnographic approach, data was collected through 2 waves of semi-structured interviews with rural seniors aged 60+ in Young and Watrous, SK.
 - 1st wave - 42 participants, February to May, 2014.
 - 2nd wave - 37 participants, July to August, 2014.
- Participant observation conducted with 5 seniors to observe day-to-day activities related to cognitive health.
- Using 1st wave findings, a concept map was developed to summarize rural seniors' conceptual themes of cognitive health into a visually accessible framework⁴ (Figure 1).
- During 2nd wave interviews, participants were given the concept map to provide feedback on the framework through in-depth discussion and drawing on the map.

DATA ANALYSIS

- Following informed consent, interviews were audio-recorded and transcribed verbatim.
- Guided by lay theory⁵ and cultural schema theory⁶, thematic analysis was performed to identify key patterns, themes and relationships within the data.
- Concept maps were analyzed by focusing on the concepts and relationships identified by rural seniors within the maps⁴.

FIGURE 1: CONCEPT MAPS



FINDINGS

Four themes of cognitive health:

- Intellectual health** – defined as the importance of mental stimulation, comprehension and continuous learning.
 - "Its means getting out of your comfort zone and learning something different."
- Social health** – described as social interaction and community engagement.
 - "If you're just going to sit in your own little space and not communicate with other people, then I think you're going to go bonkers."
- Emotional health** – expressed in terms of mental well-being, balanced lifestyle and spirituality.
 - "I think one of the most important things is having a positive attitude and whether you're a glass half full type of person."
- Functional health** – discussed in relation to physical health, activities of daily living, decision-making and independence.
 - "It's about looking after your own affairs and day to day decisions... being able to manage on your own without being dependent on others."

DISCUSSION

- In contrast to current literature which understands cognitive health in terms of pathology², rural older adults described cognitive health within a more holistic and multidimensional context, ranging from intellectual to emotional health.
- Understanding rural seniors' perspectives of cognitive health provides critical information to inform dementia awareness, education and early diagnosis in rural communities.
- If policy makers and researchers are to develop more effective strategies to support rural cognitive health, older adults' perspectives must be recognized.

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⁵Furnham, A. (1988). *Lay theories: Everyday understanding of problems in the social sciences*. Oxford, England: Pergamon Press.

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Department of Psychology, University of Saskatchewan

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 billion¹
- 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

This unique method synthesizes findings from a meta analysis based on quantitative research and findings from a meta synthesis of qualitative work.

Meta- Analysis

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

Meta-Synthesis

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

Preliminarily 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 seniors².

- Availability of caregivers for Aboriginal seniors with dementia is decreasing as demographics change (youth migrating to urban centres) and community views and values change³.

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.



C. Branger is a proud recipient of the Alzheimer's Society Doctoral Award.

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BEST PRACTICES REGARDING NUTRITIONAL CARE OF URBAN AND RURAL LONG-TERM CARE RESIDENTS WITH DEMENTIA

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Background

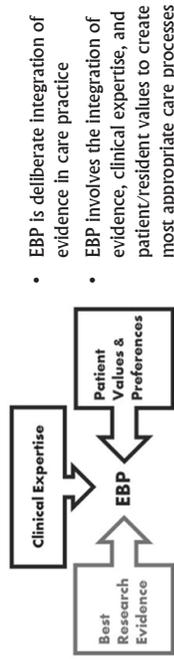
- Dementia is recognized as a public health priority; worldwide prevalence of dementia is projected to double to 65.7 million by 2030.
- Dementia is the top chronic condition prompting relocation to long-term care (LTC).
- Nutritional health of LTC residents is central to quality of care.
- Persons with dementia are at higher risk for malnutrition due to both physiological and behaviour 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 aides.



PhD research

Using an evidence-based practice framework and integrated knowledge translation approach, what are best practices regarding nutritional care of LTC residents with dementia, and does practice vary according to rural or urban LTC location?

Evidence-Based Practice (EBP) Framework



Examining best practices in nutrition care from the perspective of:

Research Evidence

- Systematic review of peer-reviewed, published research
- Search strategy and keyword terms determined a priori
- Exclusion criteria developed; articles reviewed by 2 researchers to determine final inclusion
- Appraisal of research using VIA statements
- Review Process (Khan et al., 2011)

Registered Dietitians (RDs)

- In-depth interviews
- Participants recruited from list of RDs practicing in LTC across Saskatchewan
- RDs contacted via email/phone, invited to participate in 1-2 hour in-person interviews
- Mix of both rural and urban practicing RDs
- Mix of full-time, part-time and consultant RDs
- Grounded Theory Analysis (Charmaz, 2014)

Care Aides

- Focus Group Discussions
- Four LTC homes, 2 focus group discussions per home
- Two urban LTC homes and two rural LTC homes included
- Care aides invited to participate via research posters distributed at each LTC home
- Comparison of rural – urban practice setting
- Framework Analysis (Rabiee, 2004)

Knowledge Translation and Exchange (KTE)

- KTE committee of the researcher and decision-makers formed prior to developing research questions
- KTE decision-makers include health region administrators, quality improvement manager, LTC nurse, and LTC RDs
- Research has been developed in partnership, ensuring that findings will be useful and will inform planning processes in the future
- Uptake of research findings will occur at various levels including informing EBP within the province, peer-reviewed publications, presentations



Acknowledgements



The Impact of Thinking and Speaking in the Third Person on Interpersonal Processing

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Abstract

This study isolated a technique used in Systemic-Constructivist Couple Therapy (SCCT) called Thinking and Speaking in the Third Person (TSTP). The effects of TSTP on Interpersonal Processing (IPP), dyadic perspective taking, and negative affect were explored. Sixty-three female participants were randomly assigned to one of three groups. The experimental group who practiced TSTP significantly decreased in their ability to think reciprocally about their relationship and to take their partner's perspective. Additionally, there were higher absolute difference scores in the experimental group, which indicate that the participants practicing TSTP decreased in negative affect from pre-test to post-test. These findings might be related to the 'realism effect.'

Introduction

•SCCT uses empirically-derived techniques, such as Interpersonal Processing (IPP), to enhance partner's identity within relationships to increase marital satisfaction¹

•A technique used in SCCT to increase reflexive thinking is Thinking and Speaking in the Third Person (TSTP), where the third person narrative is used to converse with one's partner and write about those interactions

•TSTP may increase a central mechanism of change in SCCT: Interpersonal processing, which involves thinking reciprocally about one's self and one's partner²

•Since higher Interpersonal Processing scores predict couple satisfaction, negative affect (negative emotions) in regards to one's relationship may decrease²

Hypothesis

•Using the third person narrative while thinking and speaking about one's relationship will significantly increase the ability to think reciprocally about the relationship and to engage in dyadic perspective taking, and will decrease negative emotions toward the relationship

Method

•63 females recruited from the Undergraduate Research Participant Pool (URPP) and flyers at York University

•In a committed, heterosexual relationship for a minimum of 6 months

•Completed the Interpersonal Processing Scale, Dyadic Perspective Taking Scale, and Positive and Negative Affect Scale prior to and directly after the 2 week duration of the study

Results

•Absolute difference scores- significant differences in Interpersonal Processing change scores between groups [$F(2, 54) = 4.60, p = .014$]

•The experimental group decreased in IPP while the comparison group increased in IPP, $p = .03$ (contrary to hypothesis; see Table 2)

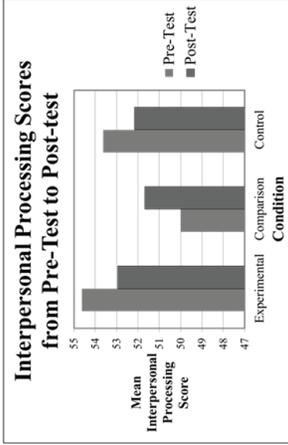


Table 2

The experimental group significantly decreased from pre- to post-intervention on dyadic perspective taking, $p = 0.009$ (see Table 3)

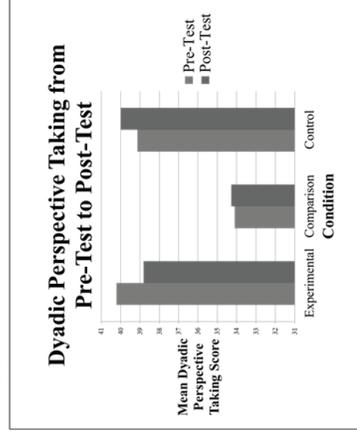


Table 3

Control Group (n = 21)	Comparison Group (n = 21)	Experimental TSTP Group (n = 21)
-Pre/post test questionnaires -10 journal entries and 10 conversations with partner using the 1 st person narrative -Rule out relationship awareness	-Pre/post test questionnaires -10 journal entries and 10 conversations with partner using the 3 rd person narrative -Relationship awareness <u>plus</u> reflexive thinking	-Pre/post test questionnaires -10 journal entries and 10 conversations with partner using the 3 rd person narrative -Relationship awareness <u>plus</u> reflexive thinking

Table 1

•Significant negative relationship between experimental group's post-test negative affect and Interpersonal Processing scores
 $-r = -.68, p < .01$

•Absolute difference scores calculated separately for each participant showed the experimental group had the highest absolute difference score from pre- to post-test ($M = 8.77$), in that their negative affect decreased.

Conclusions

•These results are useful for understanding negative emotions pertaining to relationships and the change processes involved in SCCT

•Unanticipated results highlight the importance of relationship knowledge

•TSTP should be implemented in the middle of therapy, once the couple has learned about each other

•The 'Realism effect' might explain the finding. Taking an objective perspective may have brought subjects to a more realistic view of their relationship

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- ²Reid, D. W., Dalton, E. J., Laderoute, K., Doell, F. K., & Nguyen, T. (2006). Therapeutically induced changes in couple identity: The role of wellness and interpersonal processing in relationship satisfaction. *Genetic, Social, and General Psychology Monographs, 132*, 241-284. doi:10.3200/MONO.132.3.241-288

The Role of Facilitation in Sustainability of a Dementia Training Program in Long-Term Care

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



BACKGROUND

Dementia robs individuals of their physical, mental, and emotional functioning. It can cause confusion, memory loss, personality changes, and responsive behaviours (Torpy, Lynn, & Glass, 2008). Responsive behaviours may include yelling, swearing or hitting out during care. Nursing aides (NAs) are the most frequent recipients of these behaviours (Gates, Fitzwater, & Succop, 2003).

Staff, managers, and researchers working in long-term care homes have recommended training programs specifically designed to manage responsive behaviours (Morgan et al., 2007) displayed by residents diagnosed with dementia. Unfortunately, there is a gap in knowledge transition in long-term care homes (Bostrom, Slaughtner, Chojcicki, & Estabrooks, 2012). Implementing evidence-based practices, such as a dementia specific training program in long-term care, is a complex process that requires multiple interventions beyond simple dissemination to sustain practice change (Lekan, Hendix, McConnell, & White, 2010).

THE GENTLE PERSUASIVE

The implementation of the Gentle Persuasive Approaches (GPA) program in Saskatchewan Health Region (SHR) in 2009 created an opportunity to study **facilitation** within the context of rural long-term care homes (LTC). The main goal of the GPA program is to provide staff who work in LTC homes the skills to prevent and manage responsive behaviours displayed by residents with dementia (Schindler Martin & Dupuis, 2005).

- GPA Master Coaches are responsible for training GPA Coaches. The GPA Coaches then return to their own home to train staff in all departments.
- The GPA Program consists of four modules:
 - **Module 1:** encourages staff to move away from a task oriented to an enabling approach
 - **Module 2:** teaches staff how the brain is affected by dementia and creates responsive behaviours
 - **Module 3:** teaches effective communication skills to reduce responsive behaviours and provides staff with the skills to de-escalate a crisis situation
 - **Module 4:** teaches staff the skills to physically protect themselves in a way that is respectful and safe for the residents

I-PARHS FRAMEWORK AND FACILITATION

Within the Integrated Promoting Action on Research Implementation in Health Services framework (I-PARHS), **successful implementation** results from the **facilitation** of an **innovation**, with the **recipients** (individual & collective) in their (inner & outer) **context** (Harvey & Kitson, 2015).

- This research examined the concept of **facilitation** within the i-PARHS framework. Within this framework, **facilitation** triggers the implementation process. It involves thinking about **what** is to be implemented, **who** with and **where**. Facilitation provides the low component of implementation (Harvey & Kitson, 2015).
- Successful implementation is defined by:
- Achievement of agreed implementation/project goals
 - The uptake and embedding of the innovation in practice
 - Individuals, teams, and stakeholders are engaged, motivated and own the innovation
 - Variation related to context is minimized across implementation settings

RESEARCH QUESTIONS AND THEORETICAL PROPOSAL

Research Questions

- What is the relationship between facilitation and sustainability of training programs in rural LTC homes? What type of facilitation (roles, skills, attributes) are associated with sustainability?
- In what ways do the GPA Coaches act as facilitators during and after program implementation? How do these activities compare to others who may play a facilitation role internally and externally?

Theoretical Proposition

- Appropriate facilitation leads to sustainability of evidence based practice.

METHODS

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

- **Study 1 (Retrospective):**
 - **Design:** cross-sectional, retrospective qualitative research design
 - **Site selection:** 5 homes were purposely selected 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) and focus groups (n=4)
 - **Data analysis:** data were analyzed using a qualitative, inductive approach, using the constant comparative method (Glaser & Strauss, 1967, Charmaz, 2006)

Study 2 (Prospective):

- **Design:** prospective longitudinal, multi-site, comparative case study design
- **Site selection:** 2 homes were purposefully selected based on "comparison of difference" design (Fitzgerald & Dopson, 2009) that maximized variation on organizational factors that may influence implementation and sustainability of the GPA program:
 - Affiliate vs owned and operated by the health region;
 - Management and reporting structure;
 - Position of GPA Coach;
 - Presence/absence of Clinical Nurse Leader;
 - Similar number of residents living in the 2 homes
- **Data collection:** direct observations (14 months), shadowing and informal interviews (6 months), semi-structured interviews with staff in all departments (n=15), and 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

Study 2 (Prospective)

- **Within case analysis:** inductive, grounded approach, using the constant comparative method to analyze the four types of data from each home
- **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 across the two studies

FINDINGS

- In the retrospective study, a continuum of low, medium, and high sustainability homes emerged.
- In the prospective study, data confirmed a low sustainability home and a high sustainability home and supported the theoretical proposition that appropriate facilitation leads to sustainability.

Informal Facilitators

- All homes had informal facilitators who role modeled and provided support. These facilitators were mostly NAs but were also in other departments (i.e. recreation and dietary). They were primarily younger staff members with formal dementia training.
- **Informal facilitation was necessary but not sufficient to sustain the GPA program.**

GPA Coaches

- All GPA Coaches problem solved, coached, and role modeled in all of the homes. GPA Coaches in the medium and high sustainability homes provided support, evaluation, and monitoring of staff using GPA but not in the low sustainability homes.
- The GPA Coaches in the low and medium sustainability homes did not feel they had power or authority in their position to do more facilitation and they were limited to making suggestions. In the high sustainability home, in the prospective study, the GPA Coaches were a Clinical Nurse Leader (CNL) and an LPN with authority and power to do more than just making suggestions.
- **The GPA Coach Role as currently defined was not sufficient to sustain the GPA program.**

Facilitation after the program was implemented was not an expectation of this role.

Clinical Nurse Leader (CNL)

- Skills of the CNL in the high sustainability home in the prospective study included: working with the residents, meeting daily with staff, building relationships, setting expectations for GPA performance, teaching in the moment, and using critical reflection to change practice.
- Attributes of the CNL in the high sustainability home included being patient, non-judgemental, knowledgeable, and dependable.
- **The CNL was a key reason for the sustainability of the GPA program in the prospective study.**

The CNL position with appropriate facilitation skills and attributes was related to sustainability. The CNL role was a hybrid role of leader (in a position of authority) and facilitator (i.e. facilitation skills such as shaping behaviours, relationship building, problem solving, fostering team work). Strong leadership (from those in formal leadership roles such as Director of Care or Manager) was needed in conjunction with the CNL role to sustain the GPA program.

CONCLUSIONS

- To sustain the GPA program, the informal facilitators and the GPA Coaches need to be supported to practice the GPA skills by the formal leaders within the home.
- Support from the formal leaders include: supporting and practicing the GPA program, advocating and creating an environment where staff are not punished when they practice GPA, and coaching or disciplining staff who are not practicing GPA. When staff members observe their leaders practicing and supporting GPA, the program is more likely to be sustained.
- Facilitation needs to be an official part of the GPA Coach role after the initial training program has been delivered. GPA Coaches need to be financially compensated and they need to be freed up from their own duties to work with staff to change their practice.
- When homes are selecting staff members for the GPA Coach role, they should consider staff members who are in a position of authority with credibility and respect from staff (e.g. CNL, RN, Manager, or Assistant Manager).

LIMITATIONS AND FURTHER STUDY

- Due to ethical and privacy constraints, observations and shadowing in the prospective study were only conducted within public areas. This decreased the number of times that the researcher could observe staff interacting with residents and utilizing the GPA skills during times of care, bathing, or assisting the residents to bed or getting up in the morning.

Identity Change as a Predictor of Caregiver Burden in Dementia: A Proposed Model.

Joe Enright & Megan E. O'Connell - Department of Psychology, University of Saskatchewan

BACKGROUND

- Informal caregivers of persons with dementia experience significant difficulties or “caregiver burden”, which has been associated with caregiver and care-recipient relationship quality.¹
- Anecdotal evidence suggests that perceived changes in identity of the person with dementia, subsequent to dementia onset, may also impact the caregiver/care-recipient relationship.
- Reminiscence Therapy (RT) is an intervention that may help improve the quality of this relationship and mitigate caregiver difficulties. In rural and remote communities, the high proportion of older-adults with limited access to health services makes dementia care a challenge.^{2,3}
- This project explored the role of perceived identity change in burden (Study 1) and evaluated the effectiveness of an RT activity for caregivers (Study 2). The use of videoconferencing as an accessible method of service delivery was also assessed (Study 3).^{4,5}
- This following reports preliminary results of Study 1, the objective of which was to investigate the relationships between identity, relationship quality, and burden with the aim of providing evidence for a proposed model of burden.

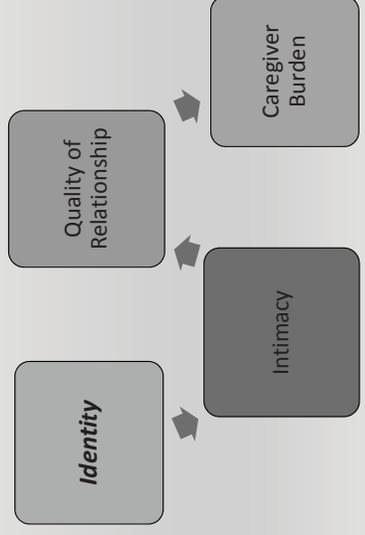
METHOD

- **METHOD:** 99 informal caregivers of persons with dementia who attended a memory clinic were administered measures of perceived change in identity of their care-partner, relationship satisfaction, and burden. It was hypothesized that change in identity would correlate negatively with relationship satisfaction and positively with burden. We further hypothesized that identity and relationship satisfaction would be significant predictors of burden.
- **RESULTS:** Perceived change in patient identity negatively correlated with relationship satisfaction ($p < .01$) and positively with dementia severity ($p < .01$) and burden ($p < .001$). Notably, 96.4% of dementia caregivers ($n=56$) vs. 65% of non-dementia caregivers ($n=20$), endorsed a change in their care-partner’s identity post onset of difficulties. The results of the hierarchical regression revealed a good model fit when entering perceived identity change into step two [$F(4,48) = 9.8, p < .001$], accounting for 47.2% of burden variance. This was a significant change at $p < .01$, accounting for 10% greater variance than step one. Only relationship satisfaction and identity change were significant predictors of burden ($p < .05, p < .01$).



RELEVANCE

- The present study is one of the first empirical investigations of perceived identity change in dementia. The results demonstrate that a large number of caregivers perceive a change in the identity of their care-partner due to dementia, with a greater level of perceived change associated with increased dementia severity. A significant role for identity in the prediction of caregiver burden was also shown, providing support for a proposed model of identity, relationship quality, and burden.



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Acknowledgements

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 TVN: Improving care for the frail elderly™
 PHARE: Partnership for Health and Ageing Research and Evaluation
 CIHR: Canadian Institutes of Health Research
 UNIVERSITY OF SASKATCHEWAN

Are Care Plans Utilised by Long-Term Care Employees? An Assessment of the Degree of Concordance between Care Plans and Actual Care Given to Residents

Fiona E. Fick, Department of Psychology, University of Saskatchewan
Paulette V. Hunter, Ph.D., St. Thomas More College, University of Saskatchewan

Background

By using written care plans, health providers strive to address all aspects of resident care through identification of needs, goals, interventions, and evaluation of outcomes.

Despite the anticipated benefits of using care plans, previous research from several geographic regions suggests they are not maximally used by nurses and nursing assistants (NAs) working in long-term care. The following reasons for underuse have been documented:

- Lack of time
- Lack of individualised background information
- Inaccurate information
- Lack of ownership of the plan
- Perceived lack of value of the plan
- Reliance on other (e.g., informal) sources of information

We were interested in discovering whether underuse of care plans was present in a sample of nurses and NAs in a Canadian health region. We were also interested in assessing the degree of congruence between the care provided and the content of care plans.

Hypothesis: Although it was not expected that all participants would know the contents of the written care plan, it was expected that descriptions of the care required by each resident would correspond to the written goals and interventions in the care plan.

Method



A research assistant documented the interventions listed in specific sections of 68 resident's care plan (i.e., sections corresponding to MDS Clinical Assessment Protocol [CAP] triggers and nursing rehabilitation plans).

Twenty-three nurses and 45 nursing assistants (NAs) from nine long-term residential care homes in a small Canadian city were then asked to describe the care required by one resident from the sample with whom they worked regularly. They were asked to describe the care as written in the care plan and, if unknown, they were asked to describe required care based on their personal knowledge of that resident.

A subsample of 18 nurses and 38 NAs were further asked if they were familiar with the terms "CAPs" and "nursing rehabilitations". They were also asked to describe how they learned about required changes in a resident's care.

Results

Respondent is using the care plan information in day-to-day care	0%
Respondent knows there is a written intervention but does not know details	0%
Respondent is unaware of interventions but care corresponds to care plan	53%

Fifteen of the 18 nurses who responded to additional questions expressed that they understood the terms "CAPs" and "nursing rehabilitations"; however, of these 15, three were unable to articulate the meaning. Just 3 of the 38 NA interviewees recognised the terms.

The three top methods of learning about changes in care were: consulting communication books, listening to verbal reports at meetings, and consulting a shared whiteboard.



Interpretation

Within the sample of LTC employees we surveyed, none could speak to the specific contents of the care plan without consulting it. In 53% of the cases, care corresponded to the written interventions, and in 47% of the cases, care did not correspond to the care plan. It is important to note that we did not assess whether the care plan or the care the employee was offering corresponded best to the resident's care needs.

Underuse of nursing care plans has been a concern for decades. Among the most promising directions for enhancing use of care plans documented in health literature are the following:

- Addressing barriers such as lack of time
- Increasing NAs' ownership and engagement in the care planning process
- Documenting details from the resident's life in the care plan, to increase a sense of relationship and provide a context for some interventions
- Supporting a workplace culture that includes care planning



The Saskatchewan Health Research Foundation provided support for this work.

Research Protocol:

Evaluation of Alzheimer Organizations' Websites With Eye Tracking

T. E. Friedrich¹, J. Seaton², P. V. Hunter¹, L. J. Elias¹, M. E. O'Connell¹, M. Delbaere³ & A. Cammer⁴
University of Saskatchewan

Introduction

Two thirds of Canadians use the internet to search for health information

However

- 1) The quality of content varies
- 2) Design features and human factors may limit accessibility to information

As Canadians become more concerned about public health information to prevent cognitive losses associated with pathological aging, development of appropriate websites is warranted.

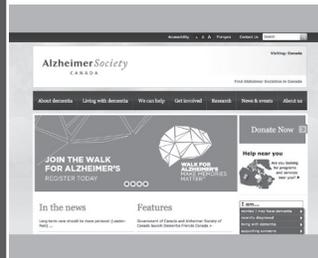
Objectives:

- Determine the usability of Alzheimer organizations' websites that contain brain health/prevention information
- Examine how the websites usability affects users' ability to locate and evaluate information about preventing cognitive decline
- Examine the relationship between participants' performance in completing the task, eye movement patterns, and usability ratings

Eye tracking:

- 1) Informs researchers of problematic features and where users have difficulty with the website
 - 2) Can be used to understand how users view, search, and process interface information
- Duration of fixations and pattern of saccades are dependent on how easy or difficult the display is to process
 - Difficult to process websites = longer fixations, more fixations closer together, shorter saccades and an overall longer scan path

Websites



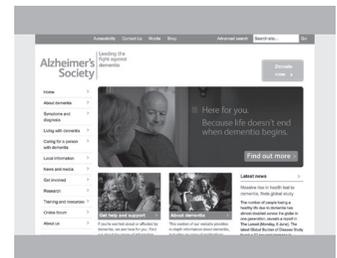
A. Alzheimer Society of Canada



B. The Alzheimer Society of Ireland



C. Alzheimer's Association (USA)



D. Alzheimer's Society (UK)

Methods

Participants: 50 University of Saskatchewan undergraduate students

Materials: SensoMotoric Instruments (SMI) Remote Eye-Tracking Device (RED 4) at 60 Hz



Presentation: Experiment Center (3.0) on a 1280 x 1024 resolution monitor

Tasks completed using 4 websites (counterbalanced):

Tasks were worded in the 2nd person to encourage participants to think of the task as their own Pages presented in Internet Explorer

- 1) "You want to know about strategies to prevent dementia"
- 2) "You want to know what Alzheimer's Disease is"



- Completed task by finding the webpage where the task information could be found and pressing F11 to move to the next task (whether it was the correct page or not)

Measures:

E-health literacy scale (8 questions)

Usability questions (19 questions)

Eye tracking data variables:

Quantitative: Success rates of completing task

Completion time

Total fixation duration

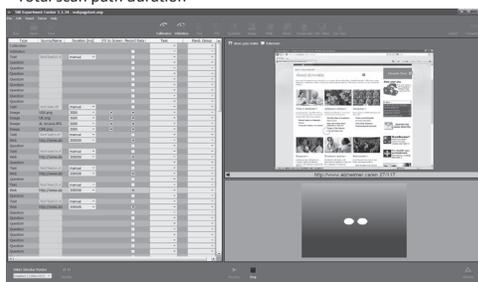
Average fixation duration

Number of backtracking saccades

Total scan path duration

Qualitative: Heat maps

Gaze plots



Predicted Results

Hypotheses:

- 1) The four webpages will not differ in their support of the participants' task
- 2) Task 1 (finding prevention strategies) will be more difficult than Task 2 (finding the definition of Alzheimer's Disease)
- 3) Eye movement patterns (total fixation duration, average number of fixations, number of backtracking saccades, and total scan path duration) will be closely correlated with the participants' performance (success rates and completion time for Task 1 and 2) and usability ratings

Analysis:

Success rates: Logistic Regression to examine if Website and Task are predictive of task completion

Quantitative variables (except success rates): examined using ANOVA

Website [A,B,C,D] x Task [Task 1, Task 2]

Future Research

The team aims to use information gathered from this study to generate ideas on how to make brain health/prevention information more accessible on the Internet

To contribute to the growing need for accurate information about cognitive health, our team is presently completing:

- A qualitative study of the usability of two cognitive health websites
- A review of the nature and quality of Internet resources on the topic of lifestyle and cognitive health

Interdisciplinary collaboration: ¹Department of Psychology, ²Interdisciplinary Studies in Education and Computer Science, ³Edwards School of Business, and the ⁴College of Pharmacy and Nutrition



Exploring Indigenous Community Needs and Fostering Community Involvement

Gould, B.1, O'Connell, M. E.1, Morgan, D.1, Bourassa, C.2.3, Jacklin, K.4, Warry, W.5, & Carter, J.1



WP1.1: PRITE

PURPOSE

To explore user needs and acceptability for **Indigenous older adults**, in an attempt to increase accessibility of the technologies developed in AGE-WELL. Also, to explore needs for older adults through community involvement to promote and to build on the cultural value of group approaches.



Indigenous older adults are vulnerable due to restricted access to local supports, services, and potentially conflicting cultural norms/perceptions, and are, therefore, the **quintessential end-users for AGE-WELL technologies**



OBJECTIVES

- Discover the communities' perceived needs of their aging adults.
- Identify needs related to geographic isolation.
- Describe findings in cultural diversity that may impact user needs.
- Discover personally relevant end-user needs in the target communities.
- Use a community-based participatory approach to explore cultural relevance of AGE-WELL technologies.

MAIN ACTIVITIES

- Qualitative interviews and focus groups on needs associated with perceptual and user diversity in indigenous participants.
- Group involvement and communication to promote and foster community awareness and unity.
- Relationship building with the indigenous communities in PEI, in particular, the Abegweit First Nation & Lennox Island Mi'kmaq First Nation

NEXT STEPS

- Providing important information about adaptation or modifications to technology developed in WPs 3-6 to increase accessibility and acceptability for Indigenous older adults.
- Exploring projects' cultural relevance for Indigenous older adults; advocacy for to meet needs identified by Indigenous communities
- Simulated remote training for indigenous older adults and Indigenous adults with cognitive impairment.
- Establish groundwork with community for perceived needs.

KEY TAKEAWAY

This work will inform development and adaptation of technology to aid accessibility for older Canadians who are of Indigenous ancestry.



RURAL AND REMOTE MEMORY CLINIC – UPDATE (Data Release 7 : March 2004 – April 2015)

L. Holfeld¹ (Clinic Nurse), M. E. O'Connell² (Clinical Psychologist, Neuropsychology), D. Morgan¹ (Clinic Director), J. Kosteniuk¹ (Research), A. Kirk³ (Neurologist), N. Stewart⁴ (Research), A. Cammer¹ (Dietitian), K. Stevenson⁵ (Physiotherapist), R. Loeppky⁵ (Physiotherapist), D. Minish¹ (Psychometrist)

¹Canadian Centre for Health and Safety in Agriculture, University of Saskatchewan; ²Department of Psychology, University of Saskatchewan; ³College of Medicine, University of Saskatchewan; ⁴College of Nursing, University of Saskatchewan; ⁵School of Physical Therapy, University of Saskatchewan

Background

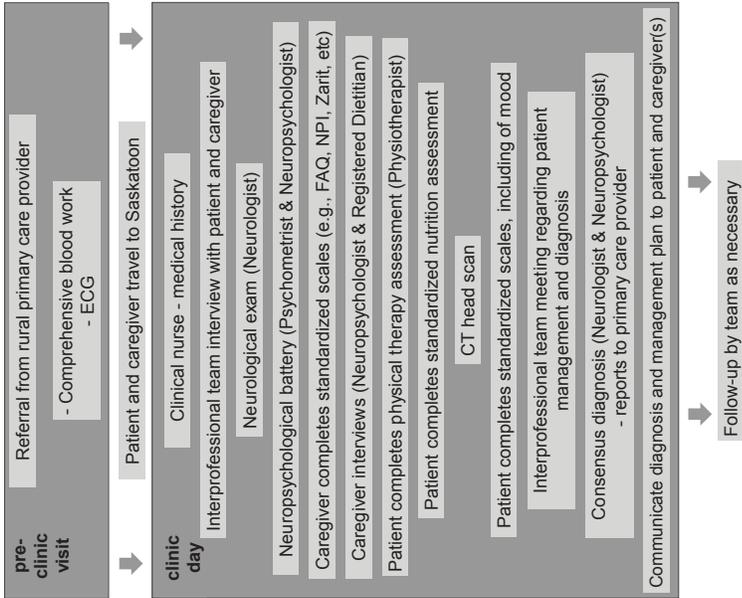
- Rural and Northern Saskatchewan (SK) have a low population density resulting in large travel burden for medical appointments
- Rural SK has a higher proportion of older adults than urban SK

Rural and Remote Memory Clinic

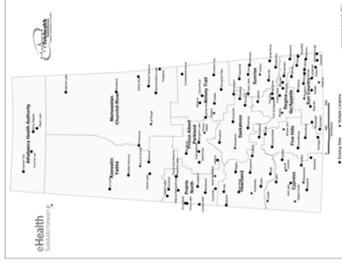
Goals

- To develop and evaluate a *streamlined integrated clinic* for patients from rural and remote Saskatchewan for diagnosis and management of dementia and to evaluate telehealth as a means of delivering follow-up care

Full-Day Coordinated Assessment



Saskatchewan Telehealth Sites



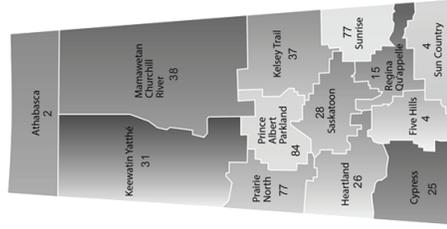
Comparison of travel time and distance saved:

- Mean distance from home to Telehealth = 32.9 km
- Mean distance from home to Saskatoon = 287.6 km
- Distance saved by Telehealth = 234.7 km (one-way)

Telehealth: As of August 11, 2015 there are 265 Telehealth sites currently operating in provincial, regional and northern hospitals in Saskatchewan. Telehealth can also link with other select sites provincially, nationally, and internationally.



Patient Referrals per Rural Health Authority



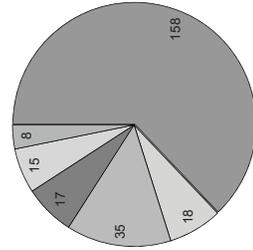
Clinical Diagnoses to Date

Mean Age = 71.4; Range 22-92 years old

Of the 412 patients seen to date:

- 20% (N = 86) displayed no cognitive impairment
- 61% (N = 251) were diagnosed with dementia & of those with dementia 62% were diagnosed with dementia due to Alzheimer Disease (AD)

- N = 158 dementia due to AD
- N = 18 vascular dementia
- N = 35 frontotemporal dementia
- N = 17 dementia with Lewy Bodies
- N = 15 dementia due to multiple etiologies
- N = 8 dementia - other (general medical condition, NOS)



- 16% were diagnosed with some form of mild cognitive impairment (MCI); amnesic vs non-amnesic; single domain vs multi-domain)
- 3% were diagnosed with cognitive impairment not otherwise specified



www.ruraldementiacare.usask.ca



BACKGROUND

- As the proportion of older people in Alberta continues to increase, the number of individuals seeking acute care services is likely to increase.
- Hospitals can be a difficult place for frail, older people with functional and/or cognitive impairment.
- One third develop new cognitive and functional disabilities unrelated to the illness that caused their hospital admission.
- Seniors currently account for:
 - 63% of acute inpatient days
 - 43% of provincial health expenditures
- This changing demographic will require adaptation of current care delivery models.



OBJECTIVES

The goal of the project was to implement and evaluate an elder friendly care initiative (EFC) at the 4 adult hospitals in Calgary, AB.

- The EFC Initiative promotes evidence-informed interventions that include:
- comfort rounds (intentional rounding)
 - delirium detection (using the Confusion Assessment Measure) and management
 - least restraint use

The initiative focused on a holistic approach to the patient using:

- Comfort Rounds
- Delirium Detection/Management
- Least Restraint Use

The initiative merges overlapping evidence-informed care strategies to help prevent and address the common geriatric issues of delirium, falls/immobility, functional decline and malnutrition

IMPROVEMENT PLAN AND MEASUREMENT STRATEGY

Education and Implementation:

- A modified Learning Collaborative Model was used to support implementation.
- Developed by the Institute for Healthcare Improvement (IHI), a Collaborative is a short-term (6-15 month) learning system that brings together a number of teams (units) to implement improvement.
- The Collaborative provides the structure for teams to easily learn from each other and from recognized experts in Seniors Care



Tracking Measurement:

A **Balanced Scorecard** was used in this initiative to track progress on identified key measures.

- Key measures were identified in a meeting attended by key stakeholders from across the province.
- Both process and outcome measures were identified and classified based on the Health Quality Council of Alberta's quality framework in order to cover all aspects of quality (see table 1 below)
- Two measures were identified as being mandatory, the remaining were optional to allow flexibility amongst units to focus on what makes most sense for them.
- The goal is to improve on the scorecard from the baseline data (filled in at level "3"), measure monthly (eventually quarterly) and aim to improve up the scale towards the ideal ("10", on a scale of 1 to 10), which is determined using various measurement tools (i.e., audits, administrative data).

Table 1. Menu of measures that could be selected for the balanced scorecard

Quality Dimension	Process Measures	Outcome Measures
Efficiency	Proper Whiteboard Use	Call Bell Use
Safety	Delirium Screening	Falls
Appropriateness	Physical Restraint Use	Urinary Catheter Use
Accessibility	Staff Training	
	Comfort Rounds Documented and Escalated Properly	
Acceptability	Proper Use of NDD	Staff Engagement
Effectiveness		Patient Experience
		Incidence of Delirium
		Mobility Status

RESULTS

Participation in Learning Collaboratives:

- Two Collaboratives were held with each of the four Calgary acute care sites.
- Turnout ranged from 40-100 participants at each site
- 15 units agreed to participate in data collection.

Key Findings:

Data are truly unique to each unit, depending on their focus and selection of process and outcomes measures. In addition, each unit has a unique mix of patient demographics.

For an overall picture, the following measures (in which ≥ 10 units measured), can be broadly looked at:

Comfort Rounds correctly documented:

Baseline 76% (range 65%-90%)
Improved an average of 8% in the second data collection period

Observed completion of comfort rounds as prescribed:

Baseline 77% (range 47%-98%)
Improved an average of 5% in the second data collection period

Completion of Whiteboard:

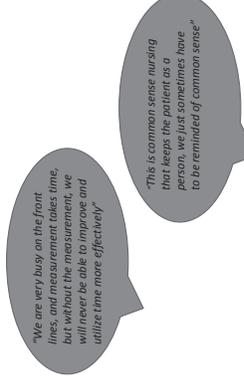
Baseline 69% (range 47%-90%)
Improved an average of 9% in the second data collection period

Call bell Use:

Amount of call bells decreased 17% on average between the baseline and second data collection period

KEY LESSONS

Comments from participating units in the initiative:



RESOURCES

Elder Friendly Care Resources for AHS staff can be found at: <https://myahs.ca/inside/3105.asp>
Resources include presentation, audit tools and posters such as:



COMFORT ROUNDS

Please follow the information below for all patients (particularly if the patient is having difficulties with 1 or more activity of daily living) during the following preparation:

- PREPARE PATIENTS DURING THE PREPARATION:**
- Assess patient's safety
 - Orient patient to room and/or unit
 - Orient patient to room and/or unit
 - Make sure the patient has their glasses
 - Ask patient if they need anything
 - Other needs of the patient
 - Orient patient to call for help if needed
 - Assess patient (as independently as possible)
 - Inform staff of recent changes in patient's condition

EACH EVENING, TRY TO PROMOTE SLEEP AT NIGHT

- Warm milk
- Music or radio
- Blank or hand message
- Talk quietly

DELIRIUM Assessment & Interventions	
Bringing The Confusion Assessment Method (CAM)	
Assessment	<ul style="list-style-type: none"> 1. Acute Onset and Fluctuating Course 2. Inattention 3. Disorganized Thinking 4. Altered Level of Consciousness
Interventions	<ul style="list-style-type: none"> 1. Acute Onset and Fluctuating Course 2. Inattention 3. Disorganized Thinking 4. Altered Level of Consciousness

Promoting Safety Least Restraint Use

Comprehensive Assessment	Analyze the Assessment	Alternative options	Planning
<ul style="list-style-type: none"> What is the Reason for Restraint? Restraint Assessment by Multidisciplinary Team 	<ul style="list-style-type: none"> Review the case with Multidisciplinary Team Identify reasons for restraint Identify potential alternatives 	<ul style="list-style-type: none"> Restraint Medication Physical Restraint Chemical Restraint Other 	<ul style="list-style-type: none"> Develop individualized Plan of Care

ACKNOWLEDGEMENTS

This project was co-led by the AHS Health-zone Elder Friendly Advisory group and the AHS Seniors Health Strategic Clinical Network, both of which are multi-stakeholder groups that include patient/caregiver members. This project was funded from a Calgary-zone Quality Improvement grant. This project ACRECCI score = 1.

Development and Psychometric Testing of the Effects of Exercise Questionnaire

Paulette Hunter*, Marjorie Delbaere, Megan E. O'Connell, Allison Cammer

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INTRODUCTION

- Health organizations are working to raise awareness of exercise and other lifestyle factors as modifiable risk factors for cognitive impairment. It is anticipated that these efforts will delay the personal and social costs associated with dementia diagnosis.
- As these efforts are scaled up, it is important to identify suitable outcome measures to assess their impact.
- To address the unavailability of measures of expectations about the effects of exercise on cognition, we developed the Effects of Exercise Questionnaire (EEQ).
- This questionnaire contains four five-item subscales measuring expectations about the effect of exercise on cognition, health, quality of life, and physical functioning.

METHOD

- Items were generated through literature review and vetted by members of an interdisciplinary research team.
- The EEQ was administered, along with three additional measures, to a sample of 87 undergraduate students.
- Internal consistency reliability was estimated using Cronbach's alpha. Convergent and divergent validity were assessed by examining correlations between the EEQ and measures of similar and distinct constructs.

QUESTIONNAIRE ITEMS

The following items are rated on a 5-point Likert scale, with responses ranging from "strongly disagree" to "strongly agree":

A. Cardiovascular and endocrine benefits scale

1. Exercise prevents heart attacks
5. Exercise prevents stroke
9. Exercise helps control blood sugar
13. Exercise makes people less likely to get diabetes
17. Exercise lowers "bad" cholesterol

B. Musculoskeletal and dermatological benefits scale

2. Exercise builds muscle
6. Exercise strengthens bones
10. Exercise prevents accidental falls
14. Exercise prevents broken bones
18. Exercise is good for your skin

C. Psychological benefits scale

3. Exercise reduces anxiety and stress
7. Exercise puts people in a better mood
11. Exercise gives people a better quality of life
15. Exercise increases energy
20. Exercise helps people sleep better

D. Cognitive benefits scale

4. Exercise prevents dementia
8. Exercise improves memory
12. Exercise improves decision-making
16. Exercise improves thinking speed
19. Exercise improves attention

RESULTS

- The EEQ (shown at right) demonstrated excellent internal consistency reliability ($\alpha = 0.92$).
- At the 5-item subscale level, internal consistency was adequate to good (A: .87; B: .73; C: .78; D: .85).
- Convergent validity was supported by a moderate correlation between EEQ scores and attitudes toward exercise as measured by the Outcome Expectations of Exercise Scale (Resnick et al., 2000) ($r = 0.58, p < .01$).
- Divergent validity was supported by a small correlation between EEQ scores and amount of exercise as measured by the Rapid Assessment of Physical Activity scale (Topolski et al., 2006) ($r = 0.16, p > .05$).



CONCLUSIONS

- The EEQ may have promise as an outcome measure for campaigns to promote cognitive health.

A Volunteer-Delivered Montessori Program for Long-Term Care Residents with Dementia

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Murray Tempel, Luther Special Care Home, Saskatoon, Saskatchewan
Darla Bolin, Luther Special Care Home, Saskatoon, Saskatchewan
Celine Hounjet, University of British Columbia
Leticia Pickard, University of Saskatchewan

What is Montessori?

The Montessori approach is among several emerging models of care tailored specifically for long-term care residents with dementia. It emphasizes the opportunity to participate in personally meaningful activities and roles at a level that respects current cognitive, sensory, and motor abilities. Initial research suggests the method has potential to improve mood, reduce agitated behaviour, and foster the maintenance or enhancement of certain abilities. The approach is drawn from educational practices first promoted by Italian physician and educator Maria Montessori (1870-1952; shown below).



Why Montessori?

Residents living in long-term care often do not have adequate access to personally meaningful activities and roles, and this has a negative effect on their quality of life. A lack of supported involvement in personally meaningful activities and roles also contributes to excess disability. The individually tailored and appropriately challenging nature of Montessori activities provides a means to increase residents' engagement in meaningful activity.

The Problem

What is personally meaningful and suited to one resident's needs does not always meet the needs of others. Given the finite resources available for recreational programming in long-term care, recreation teams are not always able to accommodate each resident's individual interests. Most resources are devoted to group programming that is likely to interest many, though not all, residents.

Partnering Toward a Solution

A community-research partnership was initiated in May through July 2015 to support the work of a recreation teams at Luther Special Care Home (LSCH).

LSCH, the community partner, recruited volunteers to learn about visiting "the Montessori way". Eighteen volunteers committed to a minimum of 20 one-to-one visits with LSCH residents.

The research team created and tested 40 activity kits. Kits were designed to complement resident's interests and abilities. For example, some residents enjoyed reviewing a map of Canada and discussing where they had traveled. Others enjoyed organizing electrical couplers, making a flashlight work, playing a simple dice game, or working with textiles.

Before the visits began, LSCH and the research team partnered to provide each volunteer with two training sessions. Training included an overview of possible symptoms of dementia, experience on a locked dementia care neighbourhood at LSCH, and hands-on experience with the Montessori activity kits. On-site start-up support and as-needed consultation were also provided.

Feasibility & Sustainability

Feedback from volunteers, staff, and families suggested that the project was generally positively received by volunteers and residents. Individual visits supplemented, rather than detracted from, group recreational activities. LSCH sees potential to continue to train volunteers and family members in the Montessori method, and says, "is a fresh approach to providing meaningful moments for many of our residents". The community-research partnership planned a health region-wide workshop to share experiences with the Montessori approach on November 25, 2015.



The Saskatchewan Health Research Foundation provided support for this work.

Simultaneous temporal trends in dementia incidence and prevalence, 2005-2013: a population-based retrospective cohort study in Saskatchewan, Canada

Kosteniuk^{1†}, Morgan D¹, O'Connell ME¹, Kirk A¹, Crossley M¹, Teare G², Stewart N¹, Dal Bello-Haas V³, McBain L⁴, Mou H¹, Forbes D⁵, Innes A⁵, Quail J²
¹University of Saskatchewan, ²Saskatchewan Health Quality Council, ³McMaster University, ⁴First Nations University, ⁵University of Alberta, ⁶Bournemouth University (United Kingdom)

the current issues ---

methods ---

- o population-based retrospective cohort study design
- o data extracted from 7 provincial administrative health databases linked by a unique anonymized ID number
- o case definition algorithm applied to 4 of the 7 administrative health databases (hospital, physician, prescription drug, and long-term care)
- o cohort included individuals 45 years and older at their first-ever recorded identification of dementia between April 1, 2005 and March 31, 2013
- o **Statistical analysis.** We calculated the percentage change between 2005/06 and 2012/13 in absolute number (*n*), percentage, population at risk (PAR), and age-standardized rate per 1,000 PAR, by dividing the difference between the two figures by the earlier figure and multiplying by 100. Percentage changes in age-standardized incidence and prevalence rates per 1,000 PAR were compared using χ^2 test, and 95% confidence intervals (CI) were calculated for all crude and age-standardized data.

main findings ---

- > overall 12-month age-standardized incidence rate declined significantly by 11.07% ($p < 0.0001$), from 8.41 to 7.48 per 1,000 PAR
- > absolute number of incident cases dropped by 3.51% from 3,389 to 3,270 while the population at risk increased by 11.38% (403,123 to 449,012)
- > mean age at identification in 2005/06 (81.67 ± 9.98) did not change significantly ($p = 0.24$) in 2012/13 (81.97 ± 10.70)
- > declines over time in the crude incidence rates were significant and similar across three of the four databases (not Prescription Drug)
- > **Gender differences:** Among females, significant decreases occurred only in the three oldest age groups, with the largest decline in the 65-74 age group. Among males, only the 65-74 age group experienced a significant decline over the 8-year period.

possible explanations ---

- o rising education levels and intellectual demands over time have been linked to declining incidence and prevalence of dementia in later cohorts [1, 2, 5-7]
- o improved prevention and treatment of vascular risks have been implicated in temporal trends of dementia decline [3,4]
- o 'compression of cognitive morbidity' hypothesis suggests that declining dementia trends demonstrate a delay of dementia to older age [5]
- o increased uptake of healthy behaviors over time has been linked to declining dementia trends [3,4,7] as have reduced cardiovascular risks such as prevention of heart disease [6] and decreased hypertension [3], cholesterol [3], and stroke [1]

Original studies published over the last decade regarding time trends in dementia report mixed results. On the one hand, there is evidence of declining incidence [1-3] and prevalence [4-6], and on the other, studies suggest stable [3, 7] and increasing dementia prevalence [8-11].

Case definition algorithm

Cases met at least one of the following criteria:

1. ≥ 1 physician visit (ICD-9 codes 290, 294, 331, 797)
2. ≥ 1 hospitalization (ICD-10-CA codes F00, F01, F02, F03, F04, F05, 1, F06.8, F06.9, F09, F10.8, F10.7, F16.8, F18.7, F19.6, F19.7, G30, G31.0, G31.1, G31.1, R54)
3. ≥ 1 prescription for a cholinesterase inhibitor (Atcept DINs 02232043, 02232044; Exelon DINs: 02242115-02242118, 02242520; Reminyl DINs: 02244298-02244300, 02285717, 02285725, 02286733)
4. Long-term Care (RAI-MDS) - a Cognitive Performance Scale score of 2 or over and/or a disease category of Alzheimer's disease or dementia other than Alzheimer's disease

Incidence (Figure 1)

- > overall 12-month age-standardized incidence rate declined significantly by 11.07% ($p < 0.0001$), from 8.41 to 7.48 per 1,000 PAR
- > absolute number of incident cases dropped by 3.51% from 3,389 to 3,270 while the population at risk increased by 11.38% (403,123 to 449,012)
- > mean age at identification in 2005/06 (81.67 ± 9.98) did not change significantly ($p = 0.24$) in 2012/13 (81.97 ± 10.70)
- > declines over time in the crude incidence rates were significant and similar across three of the four databases (not Prescription Drug)
- > **Gender differences:** Among females, significant decreases occurred only in the three oldest age groups, with the largest decline in the 65-74 age group. Among males, only the 65-74 age group experienced a significant decline over the 8-year period.

Prevalence (Figure 2)

- > overall 12-month age-standardized prevalence rate increased significantly by 30.54% ($p < 0.0001$), from 21.35 to 27.87 per 1,000 PAR
- > absolute number of prevalent cases rose 47.95% from 8,795 to 13,012, compared to an increase of 12.16% in the population at risk (411,918 to 462,024)
- > majority of increase in prevalence took place in the first 4 years of the study period, with the upward trend slowing between 2009/10 and 2012/13
- > **Gender differences:** Significant increases were apparent in every age group for both sexes (except those 45-54), with the largest increment in the 55-64 age group and the smallest increment in the 85 and older age group for both sexes.

takeaway ---

- > between 2005/06 and 2012/13, a significant decline in incidence and significant increase in prevalence of dementia (age-standardized) among adults 45 years and older in Saskatchewan, were observed in administrative health data
- > average survival time with dementia increased over the study period (from 2.56 years to 3.73 years), possibly reflecting earlier diagnosis and improved treatment
- > as individuals live longer with dementia, they require active care and monitoring for an extended period of time similar to individuals with other chronic diseases
- > administrative health data can be a valuable research tool for tracking dementia time trends, however, the limitations of this tool must be kept in mind

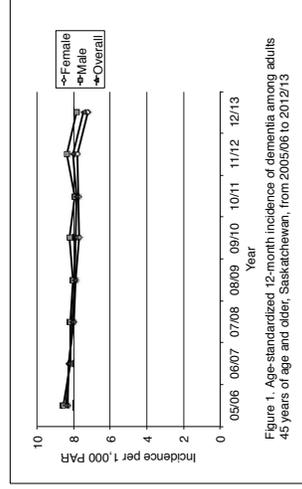


Figure 1. Age-standardized 12-month incidence of dementia among adults 45 years of age and older, Saskatchewan, from 2005/06 to 2012/13

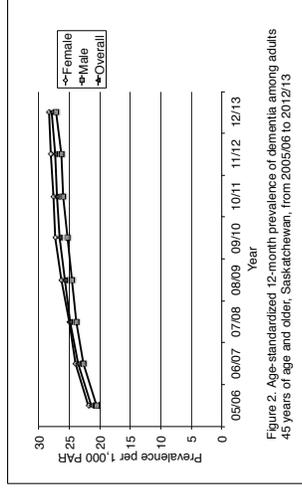


Figure 2. Age-standardized 12-month prevalence of dementia among adults 45 years of age and older, Saskatchewan, from 2005/06 to 2012/13

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Disclaimer
 This study is based in part on de-identified data provided by the Saskatchewan Ministry of Health through the Health Quality Council. The interpretation and conclusions contained herein do not necessarily represent those of the Government of Saskatchewan or the Saskatchewan Health Quality Council.

Empirical relationships between health literacy, numeracy, and treatment decision making

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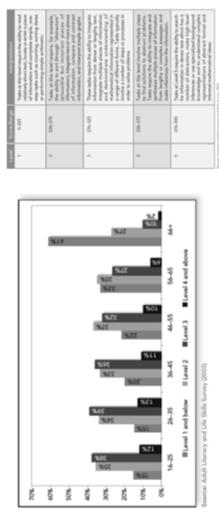
Introduction

Internationally, there is a growing trend toward the implementation, and in some cases legislation, of shared decision making and the use of patient decision aids in clinical practice. This shift is notable given that multiple barriers to their use have been identified. Poor health literacy are numeracy are two barriers.

Health literacy is defined as “the ability to **access, comprehend, evaluate and communicate** information as a way to promote, maintain and improve health in a variety of settings across the life-course” (Public Health Agency of Canada, 2014, para 1).

In Canada, it has been estimated that 60% of adults and **88% of seniors** possess low health literacy (Canadian Council on Learning, 2008).

Figure #1: Estimates of health literacy in Canada by age groups



Some measures of health literacy assess numeracy (e.g., NVS, TOFHLA), while others do not (e.g., REALM).

Numeracy is, “the ability to access, use, interpret, and communicate mathematical information and ideas, in order to engage in and manage the mathematical demands of a range of situations in adult life” (Program for International Assessment of Adult Competencies, 2009, p. 21).

Poor numeracy is widespread in a number of countries (see Figure 2) and has been identified as a problem in both patients and health professionals. Patients who lack numeracy will have difficulties assessing the probability of any risks and benefits associated with treatment options. Health professionals who lack numeracy will have difficulty explaining numerical information needed to guide patients through difficult treatment decisions.

Figure #2: Numeracy proficiency in 23 different countries

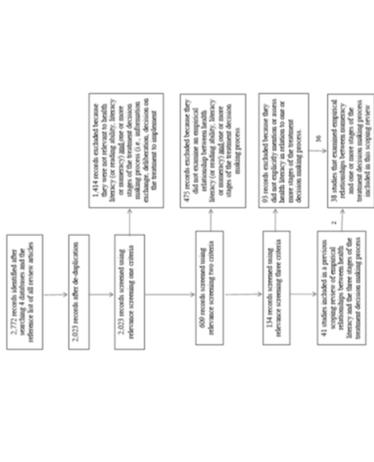


This research sought to answer: What is known about the empirical relationships between health literacy, numeracy and the three stages of the treatment decision making process (information exchange, deliberation, deciding on the treatment to implement)?

Methods

Two scoping review were conducted of the literature (Malloy-Weir et al., in press; 2014). Forty-one health literacy – and 38 numeracy-related studies were identified after a search of four databases (Medline, Embase, Erre, CINAHL) and three levels of relevance screening (see Figure 3).

Figure #3: Flow chart illustrating relevance screening process



Findings

- Health literacy and numeracy have largely been treated as separate concepts by researchers in the area of treatment decision making.
- There is a lack of: (1) agreement over the definition and measure of health literacy and numeracy adopted in studies, and (2) overlap in relationships examined –making the findings difficult to compare.
- Methodological problems undermine the ability to draw causal inferences about the empirical relationships that have been examined. There has been a lack of attention paid to:
 - empirical relationships relevant to the deliberation and decision making
 - certain patient populations (e.g., patients diagnosed with non-cancer-related disease, patients less than 50 years old, non-white, non-English or non-Spanish speaking, and residing outside of the United States)
 - the health literacy and numeracy skills of health professionals.

Conclusion

The relationships between health literacy, numeracy, and the three stages of the treatment decision making process are not clear. This finding has important implications for efforts to involve patients in treatment decision making, particularly, when risks and benefits are communicated by health professionals to patients. Attention is needed to address the methodological problems and knowledge gaps identified.

Agenda for future research

1. Develop shared definitions and measures of health literacy and numeracy that are specific to the treatment decision making context.
2. Inductively derive, and rigorously test, conceptual models that hypothesize relationships between health literacy, numeracy, and the three stages of the treatment decision making process. Identify the strength, direction, and stability of empirical relationships across the three stages and over time.
3. Refine conceptual models based on the findings from Step 2.
4. Replicate Step 1 through 3 in different treatment decision making settings.

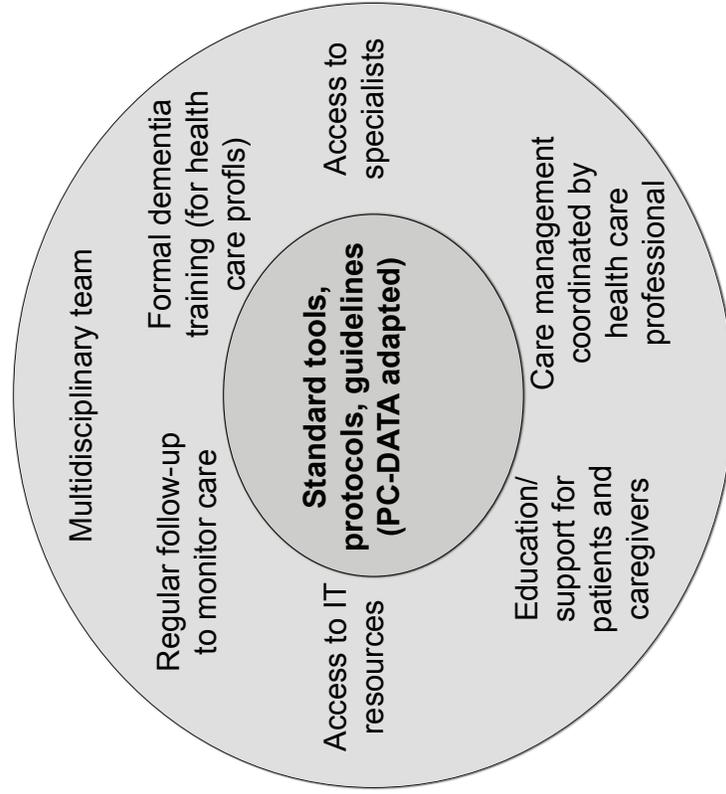
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**PROPOSED
Rural Primary Health Care Dementia Model**



Model Elements
<ul style="list-style-type: none"> ▪ This model is based on best practices for individuals with dementia and families in primary health care ▪ The core of this model is <i>standardized tools, protocols, and guidelines for dementia care</i> (i.e., PC-DATA adapted) ▪ The other 7 elements in this model have been identified as best practices in dementia care within the primary care setting (Aminzadeh et al. 2012) ▪ Most or all of these elements are already part of many PHC team settings in terms of patients with chronic conditions other than dementia (e.g., diabetes) ▪ With each PHC team in our study (1 team/yr), we will conduct Plan-Do-Study-Act cycles to: <ul style="list-style-type: none"> ▪ draw on the team's existing strengths in the elements of this model (e.g., multidisciplinary team) ▪ identify areas where model elements may require improvement in the team (e.g., care management)

Aminzadeh et al. 2012. A Scoping Interpretive Review of Literature on Perspectives and Practices of Primary Care Physicians Vis-à-vis Diagnosis and Management of Community Living Older Persons with Dementia. Regional Geriatric Program of Eastern Ontario.



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Issues in Dementia Care for Rural Populations

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TEAM #20a

THEME 3:
Quality of Life

OUR MISSION

MISSION: TO IMPROVE THE QUALITY OF **PRIMARY HEALTH CARE (PHC)** FOR INDIVIDUALS WITH DEMENTIA IN RURAL AND REMOTE COMMUNITIES
 We are building a lasting model of family-centered dementia care that combines current best practices, specialist expertise, and the existing strengths of rural PHC teams in delivering effective chronic disease management.



OBJECTIVES

- Identify current dementia care practices in rural PHC teams
- Adapt, implement, and evaluate a rural primary health care model for dementia in one SK health region, developed on the basis of best practices (e.g., *multidisciplinary team, standard tools and protocols, education/support, regular patient follow-up*)
- Investigate the facilitators/barriers of successful adaptation of a rural primary health care model for dementia
- Increase uptake of the new rural model for dementia care by using a community-based participatory approach with decision-makers and PHC teams
- Sustain and spread the rural primary health care model for dementia to PHC teams in additional SK health regions

MAIN ACTIVITIES

1. Established a 13-member Regional Advisory Council in 1 rural SK health region (Sun Country), including health region management and the Alzheimer Society of SK
2. Pre-tested a telephone questionnaire and conducted baseline telephone interviews regarding current dementia care strengths and gaps across Sun Country (with PHC teams, patients, caregivers, and the Advisory Council)
3. Currently collaborating with one of eight PHC teams in Sun Country to develop a rural primary health care model for dementia
4. Released a RaDAR-Health Quality Council report that provides provincial-level data on dementia services across SK, and dementia incidence and prevalence using administrative data

NEXT STEPS

- Identify quality indicators for *rural* dementia care, based on a literature review and collaboration with Sun Country Health Region
- Scale up and spread our newly developed rural model of primary health care for dementia to a second PHC team in Sun Country (enroll 1 team/yr)
- Compare dementia epidemiology in SK and ON using administrative health data



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RRITE: Rural/Remote Indigenous Technology needs Exploration

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WP1.1 : RRITE

PURPOSE

To determine user needs of older adults in **rural and remote areas**, as well as acceptability for **Indigenous older adults**, in an attempt to increase accessibility of the technologies developed in AGE-WELL.



OBJECTIVES

- Identify needs related to challenges posed by geographic isolation.
- Describe issues in rural user diversity that may impact user needs.
- Discover personally relevant end-user needs in the target populations.
- Determine rural user needs for remote training for AGE-WELL technologies.
- Use a community-based participatory approach to explore cultural relevance of AGE-WELL technologies.

Rural/Remote and Indigenous older adults are vulnerable due to restricted access to local supports & services and are, therefore, the quintessential end-users for AGE-WELL technologies

MAIN ACTIVITIES

Exploration of the digital divide - survey of bandwidth access for all SK residents outside the two main urban areas, including First Nations communities.

Qualitative and quantitative survey of user needs and needs associated with user diversity in rural/remote participants.

Relationship building with Indigenous communities in southern SK, northern ON, and PEI necessary for community-based participatory research.

NEXT STEPS

- Providing important information about adaptation or modifications to technology developed in WPs 3-6 to increase accessibility and acceptability for rural/remote and Indigenous older adults.
- Exploring projects cultural relevance for Indigenous older adults; advocacy for to meet needs identified by Indigenous communities
- Simulated remote training for rural/remote older adults and adults with cognitive impairment.

KEY TAKEAWAY

RRITE's work will inform development and adaptation of technology to increase accessibility for older Canadians who are of Indigenous ancestry or who reside in rural or remote locations.

Background

- Mesulam¹ described difficulties of patients with clear day to day problems, but no neuropsychological impairment, even on tests of executive function
- Most tests of executive function fail to measure the functioning of all of the prefrontal circuits^{2,3,4,5}
- Traditional executive function measures may capture the integrity of the dorsolateral prefrontal circuit, but due in part to the structure required for standardized neuropsychological testing (see works by Burgess²), do not reflect the functioning of the ventromedial or orbitofrontal prefrontal circuits^{2,3,4,5,6}
- Tests of gambling (Iowa Gambling Test³) or social cognition (theory of mind tests^{4,5}) have been demonstrated to be associated with ventromedial/orbitofrontal circuits, at least for those with clear lesions/developmental delays
- Interpretation of errors on more traditional tests of executive function (such as trail making test, Stroop interference test, and card sorting tests from the Delis Kaplan Executive Functioning System; DKEFS)^{6,7} and intrusion errors on memory tests in the context of intact encoding and consolidation (California Verbal Learning Test) have been suggested to also reflect ventromedial/orbitofrontal function (see the Modern Day Phineas Gage⁶)
- In the diagnosis of fv-FTD, converging evidence from a collateral informant (we use the Frontal Behavioral Inventory; FBI⁸; to guide the interview) or imaging (SPECT or PET) together with neuropsychological support is helpful
- Although not well studied in with the FBI, informant reports are known to be impacted by the psychological state of the informant^{9,10}, which makes converging support from neuropsychological testing or functional imaging for mild to moderate level behavioral changes reported on the FBI all the more important

- Clinical impression from a series of case studies of persons diagnosed with fv-FTD, who demonstrated additional behavioral and neuropsychological evidence when followed prospectively
- Partial Delis Kaplan Executive Functioning (DKEFS) profiles from 3 cases are illustrated plus California Verbal Learning Test (CVLT-II) recall discriminability (immediate intrusions vs free recall)

57 yr old M; estimated premorbid function average

- FBI (interview with wife) = 35
- No imaging support
- All other neuropsychological performance within normal limits

DKEFS	Raw	SS	%ile	Raw	SS	%ile
Trail Making						
Visual Scanning	30	7	16			
Number Sequencing	42	9	37			
Letter Sequencing	37	11	63			
Number-Letter Switching	176	4	2			
Motor Speed	32	10	50			
Errors - describe	overall 3	8	25			
Verbal Fluency						
Letter Fluency	30	8	25			
Category Fluency	36	9	37			
Category Switching TTI	11	8	25			
Category Switching Acc	11	9	37			
% set loss errors	0	13	84			
% repetition errors	7.2	4	2			
Stroop						
Color naming	44	4	2			
Word reading	31	5	5			
Inhibition	74	7	16			
Inhibition/switching	83	8	25			
Errors - describe	inhi/swic	3	1			
CVLT-II						
Recall Discriminability	2.6	1.5	93			

53 yr old M; estimated premorbid function average

- FBI (interview with wife) = 20
- SPECT support
- All other neuropsychological performance within normal limits

DKEFS	Raw	SS	%ile	Raw	SS	%ile
Trail Making						
Visual Scanning	21	11	63			
Number Sequencing	24	13	80			
Letter Sequencing	43	10	54			
Number-Letter Switch.	110	9	37			
Motor Speed	39	9	37			
Errors - describe	2 omission					
1 seq						
2 set loss						
Verbal Fluency						
Letter Fluency	17	4	2			
Category Fluency	34	8	25			
Category Switch. TTI	11	8	25			
Category Switch. Acc	10	8	25			
% set loss errors	0	13	84			
% repetition errors	3.6	9	37			
Stroop						
Color naming	41	5	5			
Word reading	37	2	<1			
Inhibition	84	5	5			
Inhibition/switching	94	7	16			
Errors - describe	1 inhibition					
CVLT-II						
Recall Discriminability	0.9	-3.5	<0.1			

73 yr old M; estimated premorbid function high average

- FBI (interview with highly distressed wife) = 48
- No imaging support
- All other neuropsychological performance within normal limits to superior range

DKEFS	Raw	SS	%ile	Raw	SS	%ile
Trail Making						
Visual Scanning	22	13	84			
Number Sequencing	29	15	95			
Letter Sequencing	28	14	91			
Number-Letter Switch.	72	14	91			
Motor Speed	37	12	75			
Errors - describe	0					
Verbal Fluency						
Letter Fluency	79	17	>99.9			
Category Fluency	50	17	99			
Cat. Switching TTI	12	10	50			
Cat. Switching Acc	9	8	25			
% set loss errors	2.7	9	37			
% repetition errors	0.7	12	75			
Stroop						
Color naming	32	11	63			
Word reading	22	12	75			
Inhibition	56	13	84			
Inhibition/switching	58	13	84			
Errors - describe	1 corr.	12	75			
CVLT-II						
Recall Discriminability	2	1	84			

Discussion

- Although time consuming to score, the normed error analyses from the DKEFS may be useful as part of the converging evidence for the diagnosis of some patients with fv-FTD
- We found the Iowa Gambling test and tests of social cognition from the Advanced Clinical Systems to not be useful for early stage fv-FTD and took them out of our battery
- M scores on tests of social cognition (theory of mind tests typically used for Autism) are low for fv-FTD vs controls⁵
- We need to develop age appropriate norms for theory or mind tests since they show promise in fv-FTD^{4,5}

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Specific Issues Pertaining to Dementia diagnosis

Early and timely diagnosis of dementia means:

- Better medical management of the patient¹
- Detection of reversible forms of dementia¹
- Determining appropriate patient care plans¹
- Providing necessary support to families¹

Barriers to Timely diagnosis:

- Subtlety of early symptoms²
- Disparity in dementia training²
- Reliance on family to identify symptoms^{1,2}
- Lack in knowledge of assessment procedures^{1,2}

Rationale

- Shortage of geriatric specialists means that the bulk of dementia diagnosis will fall on the primary care providers³.
- This is even more of a pressing issue in rural areas
- This necessitates more education in diagnosing and managing dementia for rural primary health care staff.

Method

Step 1:

- Administration of a paper-based survey to a rural support team composed of: 3 family physicians, 1 nurse practitioner, 1 occupational therapist and 2 home care nurses.

Step 2:

- Administration of a pre and post training measure to assess the change in perceived abilities to diagnose, treat, and manage dementia.

Step 3:

- Implementation of dementia learning material developed as part of PCData based around identified needs and preferred delivery methods.

Step 4:

- Development of new remote models of RRMC specialist to primary care provider supports for specific patients (case-based support).

Conclusion

- Involving the primary care team in designing their learning objectives should translate to better primary care for dementia.

Study Objectives

The present study seeks to:

- Identify barriers to continuing education for rural primary health care team.
- Identify best delivery method of training on diagnosis and management of dementia for rural primary health care team.

To achieve our objectives, we plan to utilize a participatory action research approach.

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BACKGROUND

Anticholinergic medications have been shown to worsen cognition in the elderly and their use has been associated with lower Mini-Mental Status Examination (MMSE) scores.¹ Patients with Alzheimer's disease are even more susceptible to anticholinergic effects.³ Current literature maintains that benzodiazepines, opioids, and medications with anticholinergic properties are best avoided in the elderly unless absolutely essential, as they have been shown to worsen cognition and can cause behavior change.^{4,5}

In 2008, Steve et al. analyzed the medication lists that 66 patients brought to their first visit at the Rural and Remote Memory Clinic (RRMC).¹¹ The focus of that paper was on the prevalence of polypharmacy, anticholinergic medication use, and benzodiazepine use.¹⁵ The present study examined medication use by patients presenting to the RRMC between March 2004 and June 2015 to see whether patterns of medication use have changed over time in patients with cognitive concerns.

METHODS & ANALYSIS

The first 445 patients seen at the RRMC between March 2004 and June 2015 were included in this analysis.

We catalogued medications with anticholinergic properties, central nervous system effects and recorded each patient's total number of medications.^{2,4,13,14} For further analysis we catalogued the score of the Mini Mental Status Exam (MMSE) that is administered during the initial clinic visit.⁹

Patients were assigned to a twelve-month time period based on the date of their initial presentation. Ethics approval for this study was obtained from the Biomedical Research Ethics Board at the University of Saskatchewan.

RESULTS

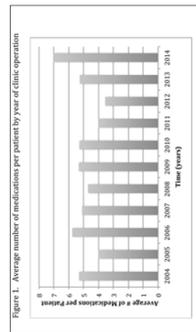


Figure 1. Average number of medications per patient by year of clinic operation

There was a weak positive correlation between total medications per patient and time (Spearman's Correlation Coefficient = 0.11), which was statistically significant (p=0.017).

Mean patient age was 77.4 years (SD = 12.0). Mean MMSE at initial presentation was 22.4 (SD = 5.8). Ninety-one patients (20.5%) were taking at least one anticholinergic medication. Eighty patients (18.0%) were taking one anticholinergic medication, and eleven patients were taking two.

Medication	Number of Patients	%
Atropine	1	1.1
Benztropine	1	1.1
Hydroxyzine	1	1.1
Scopolamine	1	1.1
Trihexyphenidyl	1	1.1
Other Anticholinergics	76	17.1
Total	81	18.2

Medication	Number of Patients	%
Alprazolam	1	1.1
Clonazepam	1	1.1
Diazepam	1	1.1
Lorazepam	1	1.1
Other Benzodiazepines	76	17.1
Total	81	18.2

Patients were on an average of 5.2 medications each (n = 444, range 0 – 15, SD = 3.46).

Number of Medications	Number of Patients	%
0	0	0.0
1	65	14.6
2	122	27.5
3	139	31.3
4	107	24.1
5	103	23.2
6	106	23.9
7	106	23.9
8	106	23.9
9	106	23.9
10	106	23.9
11	106	23.9
12	106	23.9
13	106	23.9
14	106	23.9
15	106	23.9
Total	444	100.0

We saw a slight decline in percentage of patients presenting with anticholinergic medications over time (Spearman's correlation coefficient = -0.64), which was statistically significant (p=0.035). There was no statistically significant relationship between use of medications that affect the central nervous system and time (Spearman's correlation coefficient = 0.09, p = 0.790) (Figure 3).

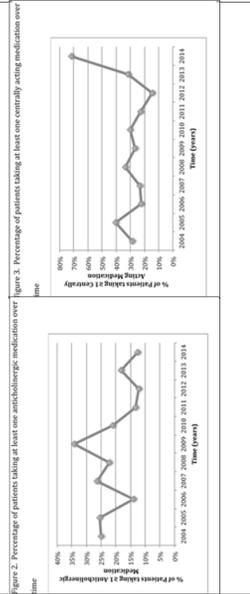


Figure 2. Percentage of patients taking at least one anticholinergic medication over time

CONCLUSIONS

The most encouraging statistic to come from this study is a decline in anticholinergic medication use in this rural elderly population. Of the 445 patients who have now been seen at the RRMC, 20.5% were taking a medication with anticholinergic properties at initial presentation.

The proportion of RRMC patients is lower than previously reported by Carrahan et al., as only eight of the 63 patients (12.7%) who presented with a cholinesterase inhibitor on their medication list were also taking an anticholinergic medication.

Considering that patients were taking an average of 5.2 medications each, it is critical for caregivers to be aware of the possible impact that polypharmacy may have on a patient's cognition.

Prescribers must be properly informed to ensure that the number of medications per patient does not continue to rise, that medications are only used when necessary, and that potentially deleterious medications are avoided.^{2, 4,14}

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