THE EFFECT OF AN INTENSIVE NURSE HOME VISIT PROGRAM ON SELF-ASSESSMENT OF HEALTH AND ON SOCIAL ENGAGEMENT IN THE INDEPENDENTLY LIVING OLD ELDERLY

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By

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Abstract

Background

The fastest growing segment of the Canadian population is comprised of seniors who are 65 years of age and older. In 2005, in Newfoundland and Labrador, seniors represented 13.1% of the population and by 2026 this percentage is projected to increase to 26.6. Recognizing the growth in the senior's population, it is important that research focuses on determining factors that will help maintain and/or improve well-being and general health.

Research Rationale

To assess and improve the care of seniors who were eighty years of age and older a randomized controlled trial, the ElderCare Project, was conducted in the St. John's and surrounding areas in Newfoundland and Labrador between 2006-2011. The research reported here is a before-after analysis of the impact of the nursing intervention employed in the ElderCare Project on self-assessment of health and on social engagement in the intervention group.

Methods

The intervention group consisted of 54 participants. At baseline, data was collected on utilization of social engagement activities and self-assessment of health as measured by the SF-36 Health Survey. The intervention consisted of the development of an ElderCare

Plan followed by eight home visits by the research nurse. At completion of the study, data on the use of social engagement activities was once again collected and the SF-36 Health Survey was repeated.

The self-assessment of health results were analyzed using the Paired Samples T-Test and McNemar's test for related samples was used to analyze the social engagement activities data. Logistic regression was used to further analyze significant social engagement activity results.

Results

The nursing intervention did not result in a significant change in self-assessment of health. While there was not a significant change in the use of formal or intermediate social engagement activities from baseline to one year, statistically significant results [$p<0.001$] were found for the utilization of informal social engagement activities. When logistic regression was used to analyse the social engagement activity data further, education level was found to be associated with increased use of all social engagement activities [Odds Ratio 4.97, 95% CI 1.48-16.71; $p=0.009$]. Similar results were found when the logistic regression was run using informal social engagement activities [Odds Ratio 4.71, 95% CI 1.32-16.8, $p=0.017$].

Conclusion

The nursing intervention resulted in an increase in the participants' use of informal social engagement activities from baseline to one year. There was no significant impact of the nursing intervention on self-assessment of health or on the use of formal or intermediate social engagement activities in this elderly population.

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Chapter 1 - Introduction

1.1 Overview

The fastest growing segment of the Canadian population is comprised of seniors who are 65 years of age and older.[1] As of 2005, this group represented 13.1% of the population and equalled approximately 4.2 million people.[1] These numbers are in contrast to previous times when the seniors' population represented a smaller portion of the population: 5% in the 1920s and 1930s, and 8% by the 1950s and 1960s.[1]

To date, the largest increase in the seniors' population was between 1981 and 2005 when the senior's population increased by 2.2 million people.[1] By 2036, the growth in this population is expected to rise to approximately 9.8 million people; representing 24.5% of the population.[1]

Across the country the proportion of seniors varies. Canadian statistics from 2005 indicated that the population of seniors in Nunavut represented only 2.6% of the population versus 14.8% in Saskatchewan.[1] In Newfoundland and Labrador, seniors represented 13.1% of the population and by 2026 the percentage is projected to rise to approximately 26.6.[1]

The oldest old is a category in the seniors' age group that represents those who are 85 years of age and older. In 2005, Statistics Canada reported that there were over 492,000 people in this age group.[1] Of note, this was twice as many oldest old seniors as in 1981.[1]

By 2021, the number of oldest old Canadians is expected to grow to 800,000 and by 2056 this segment of the population will equal approximately 2.5 million people.[1] In 2006, in Newfoundland and Labrador, the number of oldest old seniors was estimated to be 7700, which represented 1.5% of the population.[2]

Growth in the senior's population is being observed worldwide. In comparison, 2005 statistics indicated that seniors in Japan comprised 19.7% of their population versus 16% in the United Kingdom and 12.3% in the United States.[1]

Noting the trend for seniors to live longer and recognizing that the seniors' population is increasing in size, it is important that research focuses on determining the resources that will help maintain and/or improve well-being and general health for our seniors.

1.2 Self-Assessment of Health

In defining health and healthy aging, Montross et al. list 'longevity, life satisfaction and well-being, absence of physical disease, freedom from disability, mastery and growth, active engagement with life, independent living and positive adaptation' as factors that represent health and successful aging.[3] Additionally, healthy aging has been described as: 'a lifelong process of maximizing opportunities for maintaining and preserving health, physical and mental well-being, independence and quality of life', 'an individual retaining the ability to function independently' and 'the ability to maintain three characteristics: avoiding disease and related disability, sustaining high functioning, and actively engaging life'.[4-6]

When seniors have been asked to define successful aging they list being engaged with life and having high self-assessed health as being the most important factors.[7-11] A study that focused on Canadian and Brazilian older adults found that satisfaction with one's health was the most significant factor in predicting quality of life.[12]

High self-assessment of health has been linked to healthy aging and, more specifically, to good health, improved quality of life and better life satisfaction in the literature.[13,14] Additionally, high self-assessment of health has been found to be an important predictor of decreased morbidity and mortality.[5,13,15-17]

Despite the likelihood that seniors suffer from one or more medical problems, seniors are considered to be 'health optimists' and they 'tend to view their health and quality of life positively'.[12] Research by Montross et al. supports this statement as they found that 92% of their study participants rated their aging as 7 or higher on a 1-10 scale, where 10 represented perfect health, despite having some 'physical illness' and/or 'disability'.[3] Montross et al. commented on a study whereby Strawbridge et al. compared subjectively rated successful aging ('I am aging successfully or aging well') against a definition of successful aging of 'being free from disability, actively engaged with life, and having high physical and cognitive functioning' as defined by Rowe and Kahn.[3] The study found that the subjective rating of successful aging resulted in 50% of participants indicating that they had aged successfully versus only 19% when the Rowe and Kahn criteria was used.[3] A Dutch study defined successful aging as 'freedom from major disability, involvement in regular social activities, lack of cognitive impairment and lack

of depression' and compared that definition with self rated health.[3] Study results showed that 81% of participants subjectively ranked themselves as aging successfully versus only 10% when ranking by the successful aging definition.[3]

1.3 Social Engagement

When asked to define successful aging, older adults place greater emphasis on continued social engagement and social interactions than on physical health.[18] Involvement in activities that provide social interaction has been linked to better mental health, higher self-assessment of health and decreased morbidity and mortality.[17,19-21] Furthermore, social engagement has been found to be an important component of well-being and independence.[22,23] In a study conducted by Sparks et al., social interaction was found to be the 'only additional significant predictor of life satisfaction' when 'the influence of health and social position was held constant'.[24] In the Older Adult's Perspectives on Healthy Aging study, social interactions were found to be extremely important and participants emphasized the 'critical need to maintain or develop social relationships and seek community and social support'.[9] Additionally, activities that involve others have been found to be of 'greatest benefit to the psychological well-being of the elderly'.[25]

For many elderly, occasions to socialize are inadequate as families are smaller, family members are spread out over greater distances and seniors often find themselves alone due to the death of a spouse and/or friends.[26] Limited opportunities to socialize and lack

of social support networks have been related to poor health, decreased life satisfaction, decreased quality of life, increased use of healthcare services and mortality.[18,20,27,28]

1.4 Nursing Interventions

Nursing interventions for the elderly are utilized for a variety of reasons and a review of the nursing literature indicates that a diversity of programs have been implemented over the years. These programs have aimed to improve health, decrease morbidity and mortality, decrease hospitalization and nursing home admission and to decrease health care costs.[29-31] The intervention goals vary and have included improving health, providing education, and maintaining and/or improving functional status.[32,33] In addition, nursing interventions have been used as a means to promote self-efficacy, to encourage participation, and to 'empower older adults'.[32-34]

There is controversy in the literature as to the effectiveness of nursing interventions. A Canadian study, by Dalby et al., that focused on a home visit program did not show a difference between home visits and usual care.[35] A study conducted in the Netherlands focusing on nursing home visits that were tailored to maintaining or improving functional status found no effect on the 'general population of elderly people' but found that visits were effective for elderly with a 'poor (perceived) health status'.[29] One review by Van Haastregt et al. examined fifteen studies and found no evidence to support home visits when they were conducted by nurses.[36]

In contrast, Elkan et al. conducted a systematic review of fifteen studies and concluded that home visits 'can reduce mortality'.[37] Research conducted by Stuck et al. found that in-home comprehensive geriatric assessments, completed by nurses, may prevent disability and the Dutch EASY study found favourable results in mental well-being and functional performance when family physician involvement was combined with nurse led in-home comprehensive geriatric assessments.[38,39] Similarly, Australian research indicates decreased admission rates to hospitals and nursing homes and overall health benefits for elderly patients when family physicians included home visits as part of the medical care plan for their patients.[40]

Home visits for the elderly are part of a national policy in Japan, Australia and Denmark.[41] The United Kingdom also supported home visits until 2004 when the results of a 'large national trial indicated that different forms of multidimensional assessment offered almost no differences in patient outcomes'.[41]

Nursing interventions that have produced successful outcomes suggest that 'a combination of approaches is needed to enhance health and well-being and contribute to maximizing an older person's independence'.[32] Additionally, multidisciplinary teams (e.g. Medicine, Nursing, Social Work, Occupational Therapy) have been proven to be more effective when it comes to patient care.[42] Programs that combine case specific management with preventive home visits have been shown to delay the onset of disability and reduce nursing home placement, and multidisciplinary care has been shown to prevent functional decline.[43]

The majority of the articles reviewed gave little detail on what the various nursing interventions actually entailed. Additionally, a variety of nursing professionals conducted the interventions: students, licensed practical nurses, registered nurses, nurse practitioners and specialized nurses. Two studies indicated that nurses who had advanced training and/or degrees had more favourable study results.[44,45] The duration and intensity of the interventions were found to be important and studies that utilized a higher number of home visits were found to be associated with more favourable results.[39,45] This is in keeping with results from a meta-analysis of 18 randomized controlled trials that showed that home visit programs were effective if multiple follow-up visits were conducted.[44] Other important factors for favourable outcomes were interventions that were flexible and patient centered.[44,45]

1.5 Study Background

The data for this thesis project was obtained from the ElderCare Project, a randomized controlled trial conducted in the St. John's and surrounding areas of Newfoundland and Labrador between 2006 and 2011. The study participants were independently living old elderly, age 80 years and older. The purpose of the ElderCare Project was to determine if a program of home visits, conducted by a nurse, to identify areas of health care and personal needs, and work towards meeting those needs, would result in improved quality of life, change in health services utilization, change in formal community resource and services utilization, and improved self-assessment of health. The

participants in the ElderCare Project were randomly assigned to either receive the program of home visits by the nurse or to continue with usual care.

At the time of the conduct of this thesis work, the ElderCare Project had not finalized follow up and data collection for all participants. As a result, only the data on participants who had completed the project were included in this study. As well, since the investigators preferred that analyzes comparing the intervention and control groups not be conducted prematurely, this thesis takes the form of a before-after study looking at change in self-assessment of health and change in social engagement in the intervention group only.

Assessment of social engagement was not a stated goal of the ElderCare Project, however, data was collected that included use of formal community resources and services (which was one of the outcomes of the ElderCare Project), as well as data on informal or quasi-formal/intermediate activities which, when combined with the use of formal resources, covers a wide range of social engagement activities.

Chapter 2 – Purpose and Goals

2.1 Purpose

The purpose of this thesis is to study the effect of the ElderCare Project nursing intervention on self-assessment of health and social engagement from baseline to one year.

2.2 Goals

The goals for this thesis are to determine if the program of home visits received by participants in the intervention arm of the ElderCare Project results in a change in participant's self-assessed health and in their level of social engagement from baseline to one year.

2.3 Hypothesis

The hypothesis is that participants in the intervention arm of the ElderCare Project will rate their health higher and be more socially engaged by the end of the study due to the intervention.

2.4 Research Questions

1. Did the nursing intervention utilized in the ElderCare Project result in higher self-assessment of health?

2. Did the nursing intervention utilized in the ElderCare Project result in an increase in the level of social engagement?

Chapter 3 – Methods

In order to understand how the data for this before-after study was collected the methodology for the larger ElderCare Project is explained.

3.1 Physician Recruitment

Thirty-two Family Physicians, whose practices provided medical care for all age groups, received a letter informing them of the ElderCare Project. They were later contacted by phone and a meeting was arranged with the research team if the physician expressed interest.

At the meeting, the Family Physicians met the Principal Investigator, the Nurse who would be delivering the intervention, and the Research Assistant and the ElderCare Project was explained in detail. The office staff of physicians who agreed to participate compiled a list of all patients who were 80 years of age and older. Patients had to be living independently and not significantly cognitively impaired. The Family Physician completed a final review of the patient list to ensure that those deemed inappropriate were not sent letters inviting their participation.

This process resulted in 54 patients recruited as study participants to the Intervention arm of the ElderCare Project at the time of the conduct of this thesis work. These participants were all patients of the thirty-two participating physicians and they continued to receive medical care from their individual family physician during the course of the study, as needed.

3.1.1 Physician Inclusion Criteria

In order to be included in the study Family Physicians had to work at least 50% of the time, defined as seeing patients in their office at least 2.5 days per week. They also had to provide care for elderly patients.

3.1.2 Physician Exclusion Criteria

Short-term locum tenens physicians and family physicians who solely worked in the hospital or other institutions were excluded.

3.2 Participant Eligibility, Recruitment and Consent

Once the patient lists were compiled, a letter was mailed to potentially eligible participants outlining the study and what involvement would entail. They were asked to call the research office and leave a message indicating their interest in the study. Those who did not respond were later contacted to ensure that they were aware of the study and asked if they were interested in being seen to assess eligibility for participation.

3.2.1 Participant Inclusion Criteria

Participants had to be eighty years of age or older, cognitively well and living independently in order to be included in the study.

3.2.2 Participant Exclusion Criteria

Participants were excluded if they lived in a nursing home and if they were unable to give informed consent. They were also excluded if they had moderate to severe dementia, if they had profound communication difficulties (e.g. unable to complete the questionnaires even with the use of aids) and if they were receiving in-home care without which they would require admission to a nursing home.

3.3 Initial Visit

At the initial meeting with the Research Assistant, the Research Assistant first asked permission to administer the Mini-Mental Status Exam (MMSE) in order to confirm cognitive status. If the participant scored in the cognitive impairment range (MMSE 0-24) they were deemed ineligible and their caregiver(s) and/or family physician was contacted to ensure ongoing care. If the participant scored in the normal range (MMSE ≥25) they were eligible to enrol in the study. Informed consent was then obtained. Consent also included consent to access relevant information in the patient's medical chart.

After consent was obtained, the baseline data for the study was collected. The baseline data used in this thesis project were participant demographics, the Short Form-36 Health Survey (SF-36), and data related to formal, intermediate and informal social engagement activities. Details of these data are described later in this chapter.

Participants were then informed that their randomization would not be known until all patients for their family doctor were enrolled. Participants were to be contacted within three weeks and informed of their group assignment.

3.4 Randomization

The ElderCare Project used cluster randomization to allocate participants into either the intervention or the control group. The before-after study for this thesis focused solely on those enrolled in the intervention group for the reasons outlined in Section 1.5.

Cluster randomization was used to decrease the likelihood of contamination as all patients for each physician were allocated to the same study group. Randomization into the appropriate group occurred once all of that physician's eligible patients were enrolled.

Once a patient was enrolled as a participant, the Research Assistant contacted the Project Coordinator in order to obtain the randomization assignment and participants were subsequently contacted and informed about their allocation. Participants who were assigned to the intervention group were informed that the Nurse would contact them in order to set up an appointment.

Of note, the actual allocation of a physician and their patients occurred after the baseline data had been collected on all eligible and consenting participants. The baseline data collection was, therefore, blind to group assignment.

3.5 Intervention Group

Prior to the first visit by the Nurse, the patient's chart was reviewed in order for her to be aware of potential medical problems. During the first visit the participants were assessed in six specific areas during a two hour meeting. The topics included: 1) the ability to carry out activities of daily living and instrumental activities of daily living 2) a general nursing assessment of symptoms and a review of the co-morbidity symptom scales as completed at baseline 3) an assessment of medication usage, compliance and knowledge and a medication review 4) a safety assessment – risk of falls, use of the stove, etc., general home and personal hygiene and maintenance 5) an assessment of the participants understanding of their medical conditions 6) assessment about the need for community services.

From this assessment, the Nurse developed an individual ElderCare Plan that was based on the participant's personal goals for improved quality of life, general health and well-being. (e.g. better understanding of their medical conditions and medications and reasons to comply with the medication regime, assessment of involvement with community services and determining if there were other activities that the participant was interested in being involved with, determining their ability to complete activities of daily living and providing suggestions to help complete these tasks, if needed). At the completion of the first home visit, the Nurse compiled the participants' ElderCare Plan and forwarded a copy to the participant's Family Physician.

Follow up visits to the participant's home lasted approximately one hour and occurred eight times over the one year period. The early visits focused on reviewing the goals as set out in the individualized ElderCare Plan, providing education and then addressing identified issues. The home visits also enabled the Nurse to assess if the participants were accessing the various community services that were deemed beneficial. Later visits were used to monitor and adapt goals, to answer questions and to reinforce advice that was given during previous encounters.

3.6 Control Group

Participants who were randomized to the control group received the usual ongoing care from their Family Physicians. They also had access to services available through Health and Community Services, as needed. (e.g. Community Health nursing services, community clinics, health promotion).

At the end of the study, all control group participants were offered a visit by the Nurse in order to have a complete assessment and to have their own ElderCare plan developed.

3.7 Thesis Design

This study used a before-after design that focused on determining the changes from baseline to one year on a person's self-assessment of health and on social engagement in the intervention arm of the ElderCare project.

3.8 ElderCare Project Data Included In This Study

This portion of the ElderCare Project focused on the change in self-assessment of health and social engagement that was defined as utilization of community resources and services (formal social engagement activities and informal to quasi-formal/intermediate social engagement activities).

3.8.1 SF-36 Health Survey

Self-assessment of health was measured using the SF-36 Health Survey. This survey is a widely used health status measuring tool that is a 36 item questionnaire focusing on eight health outcomes: physical functioning, physical health, bodily pain, general health, vitality, role emotional, social functioning, mental health.[46] Question 1 of this survey provides the self-assessment of health data. (Question 1: In general, would you say your health is: Excellent, Very Good, Good, Fair, Poor). Responses to each item are scored from 0 (worst) to 100 (best).

The eight items have been 'shown to correlate substantially (greater than 0.40) with their hypothesized scales with rare exceptions'.[46] The 'reliability of the eight scales has been estimated using both internal consistency and test-retest methods' and the 'published reliability statistics have exceeded the minimum standard of 0.70 recommended for measures used in group comparisons'.[46] The reliability measures have been 'replicated across 24 patient groups differing in socio-demographic characteristics

and diagnosis' and studies of validity 'generally support the intended meaning of high and low SF-36 scores'.[46]

Self-assessment of health was assessed at baseline and was compared to self-assessment of health scores at one year.

3.8.2 Social Engagement Activities

The assignment of activities to the three categories of social engagement - formal, intermediate and informal - was not an exact science. The list of activities was not developed in advance, but rather developed during the course of the study from the research assistant's interviews with the participants. At baseline, and again after completing the one year intervention, the ElderCare Project's research assistant asked the participants about activities and groups they were involved with, what services, paid for or free, that they accessed, and what activities they took part in with family and friends. The social engagement activities were grouped using the following criteria. Formal activities were usually those offered by government agencies such as community/public health agencies including community health nurse visits, blood collection services, and personal care/housekeeping services, or private services such as Meals on Wheels, physiotherapy services, VON footcare, and Lifeline Alert Bracelet services. Generally these formal services required payment, even those offered by government-based community health if the participant was deemed able to pay. Social engagement activities categorized as Intermediate were those offered by organized

groups or organizations that offered activities to seniors such as Kiwanis Club, Salvation Army Ministry to Women, the Canadian Association of Retired People, church groups, and disease based groups (Lung Association, Prostate Cancer Group). These were generally offered free of change. Informal social engagement activities were generally those organized by and around family, friends and social groups and included such things as bridge groups, men's dinners, Christmas dinners with family, shopping with a daughter, field trips, family visits, and playing scrabble.

The full list of items in the three categories is in Appendix 1. The reader will notice some items seem not to be in the correct category based on the criteria above. For instance, a senior exercise class is in the intermediate category while lawn bowling is in the informal category, and there are a few other examples. These data were collected and categorized by the research assistant. A decision was made by the author not to change the categorization, as we did not have the full information about the discussion that took place between the research assistant and the participant. For instance, the exercise class might have been an activity organized as part of a rehabilitation service while the lawn bowling may have been something organized amongst friends in someone's back yard. Rather than arbitrarily make changes without the full information, we decided to accept the research assistant's classifications as they were. The investigative team had developed the classification criteria and the research assistant was aware of how the activities should be categorized. There are likely some mistakes in the classifications but

if we had made changes we would likely have fixed some misclassifications but created others.

3.9 Sample Size and Power

Estimation of sample size to achieve adequate power was conducted a priori.

The Paired Samples T-test was used to assess change in self-assessment of health from baseline to one year. Self-assessment of health gives a score between 0-100. With an anticipated difference in means of 15, an anticipated difference in standard deviation of 20, and an alpha of 0.05, a sample size of 35 provided 99% power for detecting significant results.

The change in the proportions of participants who participated in any social engagement activity category was analyzed from baseline to one year. As well, the change in the proportions of participants who participated in each of the individual social engagement activity categories (Formal, Intermediate and Informal) was analyzed from baseline to one year. With the baseline probability set at 50%, the anticipated probability at one year set at 76.5%, and using an alpha of 0.05, a sample size of 54 was needed to provide 80% power for detecting significant results.

3.10 Analysis

The before-after comparisons for the change in SF-36 Health Survey scores were analyzed using the Paired Samples T-Test.

Analysis of the change in utilization of social engagement activity categories from baseline to one year was conducted using McNemar's test for related samples. For baseline and one year, each individual was coded as 1 if they used two or three of the social engagement activity categories and 0 if they used zero or one of the social engagement activity categories.

McNemar's test for related samples was also used to analyze change in the use of formal, intermediate and informal social engagement activity categories from baseline to one year. Whether or not each participant partook in an activity in the three social engagement activity categories was coded as 1 (Yes) or 2 (No).

Significant results were further analyzed by age, sex, education level and marital status using logistic regression. The dependent variables for these two logistic regression analyzes were i) whether or not there was an increase from baseline to one year in the number of social engagement activity categories that the study participant was involved with, ii) whether or not there was a change from baseline to one year in the use of informal social engagement activities. For the first dependent variable, if a study participant took part in more social engagement activity categories at the end of one year than at baseline the variable was coded 1; otherwise it was coded 0. For the second

dependent variable, if a study participant took part in informal activities at one year but had not participated in informal activities at baseline the variable was coded 1; if there was no change from baseline, or if they changed from participating to not participating, then the variable was coded 0.

Sex was coded as 1 (Male) and 0 (Female) and age was categorized as 1 (80-84) and 0 (85 and older). Education level was coded as 1 (Some University and University Degree) and 0 (less than Grade 9, Grade 9-12, High School Diploma, Some Trades/College and Trades/College Diploma). Age and education level were broken down into two groups using the median of the frequency distribution of these variables in order to ensure sufficient numbers in each subgroup. If, for instance, age was divided by octogenarian versus nonagenarians as in Table 1, there would have been 6 participants in the nonagenarian group. Marital status was categorized into those married and living with a spouse and those living alone: 1 (Married) and 0 (Single, Separated, Divorced and Windowed).

4.0 - Chapter 4 – Results

4.1 Exploration of the Data

A total of 54 participants were analyzed in this before-after study. There was no missing data.

Table 1. Participant Baseline Data.

Baseline data	Actual Number	Percentages (%)
Male	22	40.7
Female	32	59.3
Age		
80-89	48	88.8
90-100	6	11.2
	Mean Age 84 years SD 3.9 years	
Education		
Less than Grade 9	4	7.4
Grade 9-12	6	11.1
High School Diploma	10	18.5
Some Trades/College	4	7.4
Trades/College Diploma	6	11.1
Some University	10	18.5
University Degree	14	25.9
Marital Status		
Single	3	5.6
Married	20	37
Widowed	30	55.6
Separated	1	1.9
Divorced	0	[[0

The table speaks for itself but some comments may be prudent. The larger proportion of females is consistent with this elderly population. Statistics Canada provides data for 2011, which shows that in the Canadian population of adults 80 years and older, 63% are female.[47] Sixty two percent of the study population had at least some post-secondary

education; this is close to the 2006 statistics for all Canadians but one would expect it to be lower for the elderly due to lower levels of accessibility to higher education in Newfoundland and Labrador in past decades.[48] Our results may be a reflection of the somewhat affluent populations of several of the clinics used in this study. In the table above, the participants were divided by decade of life; not surprisingly, given the increased death rate with age, there were more octogenarians than nonagenarians.

Also, from the ElderCare data as collected at baseline, 95% of participants had at least one chronic medical condition, 33% had made a visit to the emergency room in the previous year, and 18.5% had been hospitalized in the previous year.

The average for self-assessment of health scores, as measured by the SF-36 Health Survey was 59.72 out of 100 at baseline versus 56.94 out of 100 at one year.

The use of social engagement activities was measured at baseline and one year. At baseline participation in two or three social engagement activity categories was 36 (66.7%) and at one year it was 48 (88.9%). When broken down by group, the frequency of use of formal social engagement activities was 27 (50%) at baseline and 34 (63%) at one year, the use of intermediate social engagement activities was 36 (66.7%) at baseline and 38 (70.4%) at one year and the use of informal social engagement activities was 37 (68.5%) at baseline and 54 (100%) at one year.

4.2 Data Analysis

Paired data on 54 participants was analyzed using SPSS 18.

The Paired Student's T-test was used to evaluate the impact of the nursing intervention on self-assessment of health: Question 1 of the SF-36 Health Survey (In general, would you say your health is: Excellent, Very Good, Good, Fair, Poor). The results were re-coded according to the SF-36 Health Survey re-coding system in order to obtain a score out of 100. The analysis did not show a statistically significant difference between Baseline ($M = 59.72$, $SD = 24.484$) and One Year ($M= 56.94$, $SD = 25.429$), $t(53) = 1.062$, $p =0.293$.

Overall, the use of social engagement activities was compared between baseline and one year using McNemar's test for related samples. McNemar's analysis for change in overall use of social engagement activities rejected the null hypothesis ($p=0.004$) suggesting that there was a significant difference in overall use of social engagement activities at the end of the study compared to the beginning. This difference was in the direction of increased social engagement activities at the end of the study.

To determine if this difference was due to a change in a specific category of social engagement activity, each activity category was analyzed separately using McNemar's test for related samples. Baseline data was compared to results at one year. McNemar's analysis for change in formal social engagement activity use supported the null hypothesis. There was no significant difference in the use of formal social engagement

activities from baseline to one year. McNemar's analysis for change in intermediate social engagement activity use supported the null hypothesis. There was no significant difference in the use of intermediate social engagement activities from baseline to one year. However, McNemar's analysis for change in informal social engagement activity use suggested rejecting the null hypothesis [$p < 0.001$]. There was a significant difference in the use of informal social engagement activities from baseline to one year.

Logistic regression was used to determine if available demographic factors affected the change in the use of social engagement activities and the change in informal social engagement activities found using univariate analysis. For the logistic regression using change in overall use of social engagement activities as the dependent variable, only education level was associated with increased use. The p value was 0.009 with an odds ratio of 4.97 (95% CI 1.48-16.71) suggesting that those with at least some university education were almost five times as likely to report participating in increased categories of social engagement activities at the end of the study compared to those with no university education. Similar results were found when the logistic regression was run using informal activities as the dependent variable. In that case the p value was 0.017 with an odds ratio of 4.71 (95% CI 1.32-16.8). This also suggested that those with at least some university education were more likely to participate in informal activities at the end of the study compared to those with no university education.

Chapter 5 – Discussion

The ElderCare Project is being conducted to determine the impact of a nursing intervention on a variety of factors. This thesis research focused on the impact of the nursing intervention on a participant's self-assessment of health and on social engagement from baseline to one year.

5.1 – Self-Assessment of Health

Successful aging has been associated with good self-assessment of health and those who report good health have been noted to have better health practices (e.g. physically active, non smokers, minimal alcohol intake).[3,17] Furthermore, good self-assessment of health has been found to be a 'significant independent predictor of survival'.[7]

For the elderly, what they themselves deem to represent healthy aging does not necessarily mean being free from disease.[3] A study of elderly by Berg et al. found a relationship between life satisfaction and self rated overall health whereas medically defined health and life satisfaction were not found to be significantly related.[13]

When self-assessment of health is analyzed by gender, a strong association between life satisfaction and self-assessment of health was noted for women whereas 'neither self-assessment of health nor medically defined measures of health were found to be related to life satisfaction for men'.[13] Marital status was found to be an important factor for life satisfaction for men where those who were widowers reported lower life satisfaction.[13] Level of income and level of education have been found to be important factors for self-

assessment of health where those who report higher levels of income or higher levels of education were found to report higher self-assessed health.[17,19,49]

This current study did not find a relationship between the nursing intervention and self-assessment of health from baseline to one year. The self-assessment of health score average was 59 (on a scale of 0-100) at baseline and 56 (on a scale of 0-100) at one year. This was not a significant change and indicates that the average response for self-assessment of health was 'Good'. As with many of the studies reviewed, this study population was comprised of healthy participants who were living independently. Elderly people in nursing homes, or those who could not self-ambulate or look after themselves, were excluded. Most of the healthy participants in this study did have at least one chronic illness, however, their illness was not so great that it affected their ability to live independently. It is not surprising that the participants in this study rated their health as 'Good' at baseline and at one year, as they represent the healthier segment of the elderly population.

Given that this research did not find a positive relationship between the nursing intervention and self-assessment of health, the role of sex, gender, marital status or education level cannot be determined for this population of elderly individuals.

5.2 Social Engagement Activities

With the help of community supports and social networks 'older adults manage to care for themselves and maintain what is for them a satisfactory state of health and well-being'.[50] There are a wide range of services and activities that fall under the blanket of social engagement activities and they range from formal to informal. For the ElderCare Project, resources and activities have been broken down into three groups – Formal, Intermediate and Informal. All of the activities entail some level of social involvement with the intermediate and informal groups providing the most social opportunities. The breakdown of resources used in this study is similar to that used in other research.

This current study found significant results for the use of social engagement activities from baseline to one year. Research has shown that formal and informal supports play a role in individual well-being; elderly individuals who are involved socially perceive themselves as healthier.[25] A study by Golden et al. noted that 'higher levels of social engagement were significantly associated with a broad spectrum of health and well-being' and a study by Montross et al. showed that those who participated in informal community activities were found more likely to rate themselves as having aged successfully.[3,18] Furthermore, the 'Australian Longitudinal Study in Aging' noted that individuals who had greater social ties were found to have lower mortality risks and improved physical health outcomes.[19]

There is research to suggest that most elderly do not have adequate levels of informal social support and the frequency of social contact is noted to decrease with age.[13,25] However, despite the decline, satisfaction with social involvement has been found to increase as one gets older.[13] Of further importance, it appears that it is the 'quality' of the social engagement activity, and not the 'quantity', that is the most important factor for life satisfaction.[13]

Use of community resources and social engagement activities is quite variable. One study indicated that those who used community resources seemed to be those who were less striving and less economically successful but more inclined to participate in organized activities.[51] Other studies have reported potential barriers as a reason for the variability in the use of social engagement activities and these include: lack of knowledge about the service/activity, cost of transportation, location of service/activity, cost to use services/activities, personal attitudes, inconvenience, unavailability, limited variety, refusal to accept 'charity', lack of time, lack of family support, lack of willpower or motivation.[19,34,52]

When analyzed by category, this current study found significant results for the utilization of informal social engagement activities from baseline to one year. When further analyzed this effect was strongest for those who had attended university and for those who had completed a university degree. One could speculate that this group of individuals were more used to taking it upon themselves to organize activities and be

involved in activities later in life, due to a proactive approach given higher post secondary education.

5.2.1 Informal Social Engagement Activities

It is interesting that a change was noted in the informal social engagement category as activities that fall under this category are mentioned numerous times in the literature as having the biggest impact on health, life satisfaction, loneliness and depression for the elderly population.[3,20,24] Elderly well-being has been shown to be supported by the informal social engagement activity options of spending time with family and friends and participating in social events (e.g. reading, playing cards, going out to dinner).[53] Elo et al. explain the link between getting help from family members, friends and health care professionals as a means to allow the elderly person to be supported, feel cared about, keep in touch, have social interactions and build upon their sense of well-being.[53]

5.3 Nursing Intervention

As has been discussed, there is controversy in the literature as to the effectiveness of nursing interventions. Studies that have been found to be effective have included multi-disciplinary care models where home visits occurred at least four times a year.[42,44,54] Interventions that included professionals who had education or training specific to elder care provided more positive results and programs that identified medical problems and provided early intervention and treatment were deemed more successful than generalized programs that targeted elderly adults.[40,45] Home visits that were found to be

beneficial were thought to be due to 'the early identification of problems' and timely 'appropriate care'.[44]

Many authors feel that 'too healthy elderly persons should be excluded, because both preventive home visits and comprehensive geriatric assessments are ineffective in these sprightly people'.[42] Some studies indicate that nursing intervention programs would likely be more beneficial for those who reported poorer health and/or are considered frail.[31,45] However, the results of a study conducted by Bouman et al. reported that programs that were tailored to older people with poor health were not beneficial.[41] A study by Bula et al. suggests that although some authors 'believe that preventive home visits should target only frail, functionally dependent older people, if the goal is prevention then older people who are functioning well are more likely to benefit'.[55]

The intervention in the ElderCare Project was primarily a nursing intervention that included some Family Physician involvement. The study focused on independently living elderly who were cognitively well. The intervention consisted of eight visits over the year and was multifaceted in that it served to determine unmet needs and provide assistance to ensure that these needs were met. It provided support and encouragement for being active and participating in community activities and the overall goal was to improve well-being and decrease the need for medical services.

The impact of the nursing intervention in this current study was not large. The intervention did not result in significant changes in self-assessment of health or use of

formal or intermediate social engagement activities. It did, however, show a significant difference for use of informal social engagement activities. When baseline characteristics were taken into account, higher education magnified this effect. It is difficult to know what part of the nursing intervention played a role in this change. However, since identifying appropriate social engagement activities was part of the nursing intervention, this was likely the cause.

5.4 Limitations

This study involved well, independent living individuals who were eighty and older and results may only be generalizable to this demographic cohort. Additionally, the one year duration of the study may be too short to note significant differences.

The study was conducted in a city and all participants lived within a 30-40 minute drive of the urban centre. Research has shown that urban and rural health findings can be quite different. As a result, we cannot extrapolate the results of this study to elderly persons in rural communities in Newfoundland and Labrador.

Furthermore, the results of the intervention group were not compared to the control group. The comparison was not made because 1) all data for the control group was not available at the start of this research and 2) the investigators preferred that analyzes comparing the intervention and control groups were not conducted prematurely.

The final limitation pertains to data collection. Data on the frequency (quantity) of use of social engagement activities was collected, however, an intensity score was not used. As

such, a simple count of social engagement activities does not provide the full picture and, therefore, cannot be commented on further in this thesis.

5.5 Implications

The positive finding from this study is an increase in the use of informal social engagement activities. Informal resources are as basic as visiting with family and/or friends, having organized meals, watching a movie and playing card games. These are small activities that have been shown to have a big impact on elderly well-being.

Informal activities do not need to be structured, trained professionals are not needed to run a program and there is no limitation to participation based on education or income status. Given the benefit of informal social engagement activities, and given the relative ease to set up such activities, it is the author's opinion that participation in informal social engagement activities should be encouraged for elderly throughout the province. While this study was conducted primarily in an urban setting, the health of rural elderly may also benefit from using informal social engagement activities.

5.6 Further Research

Further research in this area should include an analysis of the entire ElderCare Project population once the study is complete. This would include a comparison between the intervention and control groups. The study would still be based on one year follow up but the population size would be larger.

Additionally, further research would include conducting the larger ElderCare Project in rural areas of the province to see if similar results were obtained.

Chapter 6 – Conclusion

This study did not find a significant impact of the nursing intervention on self-assessment of health nor on the use of formal or intermediate social engagement activities by this elderly population. The significant finding from this research is an increase in the use of informal social engagement activities from baseline to one year.

Being socially involved has been found to have a positive impact on quality of life, life satisfaction and health in the elderly population. It is important that we promote the use of informal social engagement activities as a means to increase quality of life and health for our elderly. This is an area that can be easily promoted and encouraged for all elderly.

The results of this study are one small piece of a larger analysis of the participants in the ElderCare Project. As the remainder of the ElderCare Project data is analyzed and reported it will hopefully provide significant findings so that we can continue to promote the health and well-being of this elderly population.

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Appendix 1 - Social Engagement Activities

Formal

Community Health Nurse
Blood Collection
Wheelway
Eastern Medical - Leg Brace
Garbarge Collection
Bladder checkups
Belbin's Grocery – Prepared Meals
Housekeeping
Footcare (VON)
DVA Nurse
Transportation Arrangements
Assisted Living – Doctor Visits
Lifeline Alert Bracelet
Meals in Primary Care Home
Snow Clearing
Physiotherapy
Meals on Wheels
Grounds Maintenance
Coleman`s Home Delivery
Lives in North Pond Manor
Neighbour cuts wood

Intermediate

YMCA Cardiac Group
Women`s Activity Group
Kiwanis Club
Seniors Computer Club
Salvation Army Ministry to Women
YAH -Young at Heart
Seniors Resource Centre –courses
British War Brides Luncheon
Knights of Columbus
Elks Club
Hoyles Escasoni - Volunteer
Founder of 50+ Group – V.P.
NL Horticultural Society
Prostate Cancer Group
Canadian Association of Retired People
Trefoil (Girl Guides) Older Guider
Exercise Group
Cancer Craft Fundraising Group
Volunteer Glenbrook
Program Committee at Church
Seniors Resource Centre
Lung Association
FSNA
Volunteer with Multiple Sclerosis
Society of United Fishermen Member
New World Fitness
Retired Nurses Group
Church Choir
Beta Sigma Phi
New Creations Women`s Group
United Church Women
Seniors Exercise Class
Church Outreach – Volunteer
Seniors Group
Gathering Place -serve meal
Annual Meeting
Reverend Piling in building service
Floral Art Group
Prayer Meeting
Church Choir Practice
Alter Guild
Walking Club
Priest visits
Volunteer Escasoni
NL Ranger Force Association
Friend of Botanical Garden
St. Luke's Yoga
Church Conventions
Beta Sigma Phi
Ladies Auxillary
Field House/Aquarena
Women's Ministry
Sunday School
Retired Nurses
Rotary Club
Janeway Auxillary
CN Pensioners
CN Pensioner's Wives
Catholic Women's League
Gospel Group
Writer's Guild
Men's Group
Anglican Church Women
Men's Club AOTS
Nursing Home-Fundraisers
Legion
Food Bank Volunteer
Friday Friendship Group
Girl Guides
Ostomy Group
Friday Parish Cleanup
Visual Artists Union - AGM
Volunteer with Church
Silver Thread Seniors
Women's Institute

Retired Officers Fellowship - Salvation Army
Independent Order of the Daughter's of the Empire
Trustee NL Commercial Traveller Association
Canadian Federation of University Women
Church – Roman Catholic, St. Pius X, 50+ Elim Pentecostal Tabernacle, Cowan Heights United Church, Salvation Army, St. Augustine's Church, Church of England, St. Theresa`s Parish, St. Mary`s Anglican, St. Mark`s

Informal

Bridge and Card Groups
Christmas Dinner
Big Book Sale
Friend Visits
Phone calls to Friends/Family
Bowling Group
Mahjong Group
Family events-basketball, games
Meditation
Drives friends to appointments
Shopping with Daughter/Son
Tim Horton's
Listens to Audio Books
Trivia
Knights of Columbus darts
St. Luke's Homes -Snack Service
Women's Group card game
50 plus – Card Game, Darts
Social Events at Towers
Balley Halley Bridge
Outing with residents
Lawn Bowling –Summer
Scrabble
Summer home in Brigus
Book Study
Play Darts
Field Trips
Eastern Edge Gallery
Flipper Dinner -Church
Church Tea
Fireman's Ball
Bingo
Church Craft Class
Painting Class
Seasonal dinners
Men's Dinner
Baking visit
Gardening
Theatre Group
Christine's dancing
Arts and Crafts

Field Trips St. Michael's for Supper/Play Cards
Birthdays/Special Occasions
Meals or Tea with Friends/Family, Lunch Group
Dinner Parties, Pot Luck, Flipper Dinner, Jigg`s Dinner
Family Visits – Daughter, Son, Niece, Granddaughter, Son/Daughter live in house or next door