

How Social Support Influences Aged Residential Care Admission in People with Dementia in New Zealand

Author: Peter Qiu

(Honours Student, Department of Mathematics and Statistics, the University of Canterbury)

Supervisor: Dr Hamish Jamieson, (University of Otago)

Supervisor: Professor Jennifer Brown, (University of Canterbury)

Introduction

New Zealand has a growing number of older people and one of the major health issues affecting predominantly elderly people is dementia. In 2011, just over 48,000 New Zealanders had dementia. By 2026, it is estimated that over 78,000 New Zealanders will have dementia (Ministry of Health, 2013). More people with dementia will lead to an increase in costs. Therefore, an important aim of dementia care is to maximize the independence and wellbeing of people of dementia, and thus, to minimize the costs. Previous studies found that social support is related to the quality of life of people with dementia (Topo, 2009). If we can prove that social support is a strong predictor of aged residential care (ARC) admission in people with dementia, we would recommend more social support for them. The aim of this project is to find out to what extent the amount of social support for people with dementia can predict admissions to ARC. The results of this study can be used to support government's Ageing in Place Policy.

Method

The national interRAI homecare dataset (version 9.1) was used for this study. The data were collected between September 2012 and January 2016, and these data were linked with aged residential care admission and mortality data. The dataset originally contained 71,859 consenting individuals. After exclusions were applied, 11,075 individuals were finally selected for the analysis. Individuals were excluded for the following three reasons: 1, their interRAI-HC assessment was conducted in a hospital setting; 2, they did not have a dementia diagnosis; 3, if they had been in aged residential care for more than 30 days before their interRAI assessment was finalized (see Figure 1). In this study, dementia was defined as having an Alzheimer's disease diagnosis or other type of dementia. The criteria used was Question I1 neurological C and D in the interRAI form. The amount of social support was measured using Question F 1b. This question is phrased "Visit with a long-standing social relation or family member." There are six possible answers to this question: 0, never; 1, more than 30 days ago; 2, 8–30 days ago; 3, 4–7 days ago; 4, in last 3 days; 8, people are unable to determine. The number of people in each social support level is shown in Table 1.

An exploratory data analysis was conducted to obtain the demographic information of the population (Table 2). Kaplan-Meier survival curves were drawn to demonstrate the general pattern of people in different social support levels (see Figure 2). Eight confounders were selected to adjust for the causal effects of predictors on the outcome variable. The eight confounders were: *age*, *communication*, *fatigue*, *bladder incontinence*, *bowel incontinence*, *mobility*, *depression*, and *living arrangement*. Finally, competing risk regressions were conducted to quantify how much social support influences aged residential care admission in people with

dementia. Since two events (i.e. death and entry to aged residential care) are competing against each other, a competing regression is the appropriate statistical method in this study.

Results

Among all people with dementia in this study, 58% were female and 42% were male. More than 80% of people with dementia were aged 75 or above. The majority of people with dementia lived with their spouse or partner only, which made up 45% of the total number. This group was followed by those living alone, which made up 32% of the total number of people with dementia. Competing Risks Regressions were conducted before and after accounting for the eight confounders. These results are shown in Table 3 and Table 4, respectively. Looking at the unadjusted results, if those who never had a visit with their family members or friends were treated as the reference group, then people who had a visit more than 30 days ago had a relative risk of 0.94, which meant they were 6% less likely to be admitted to ARC compared with the reference group. People who had a visit between 8 – 30 days ago were 8% less likely to enter ARC compared with the reference group. People who had a visit between 4 – 7 days ago were 13% less likely to enter ARC compared with the reference group. People who had a visit in the last three days were 8% more likely to enter ARC compared with the reference group.

Discussion

As can be seen, the general pattern was that the more often people with dementia had a visit with their family members or friends, the less likely it was that they would enter ARC. However, when it came to the people who had a visit in the last three days, this changed. This group was the most likely to enter ARC with this group having an 8% higher chance than the reference group. It is thought one the reason for this counterintuitive result could be because these people may be more advanced with their dementia and as a consequence, need more frequent visits with family members or friends. This could then explain why this group may be more likely to enter ARC in the end. The unadjusted results show the same pattern, that is, the more often people with dementia have a visit with their family members or friends, the less likely they it is that they will enter ARC. The exception to this again is that people who had a visit in the last three days were the most likely to enter ARC. It is worth mentioning that the difference between each social support level and the reference group is smaller in the adjusted relative risks than in the unadjusted relative risks. This difference indicates that part of the effect of social support on the ARC admission can be explained by these confounders.

Conclusion

The result of this study shows that social support level is a statistically significant predictor of ARC admission in people with dementia, but it appears to be a complex picture. Generally, the more often people with dementia have a visit with their family members or friends, the less likely it is they will enter ARC. However, those who had a visit with a family member or friends in the last 3 days were more likely to enter ARC. One needs to be aware that frequent 'social visits' may actually be more supportive than social in purpose. Regular social interaction appears to be decrease the likelihood of someone entering ARC, but very frequent social visits appear to indicate an increased likelihood of entering ARC.

Appendices

Figure 1. Exclusions applied to the dataset

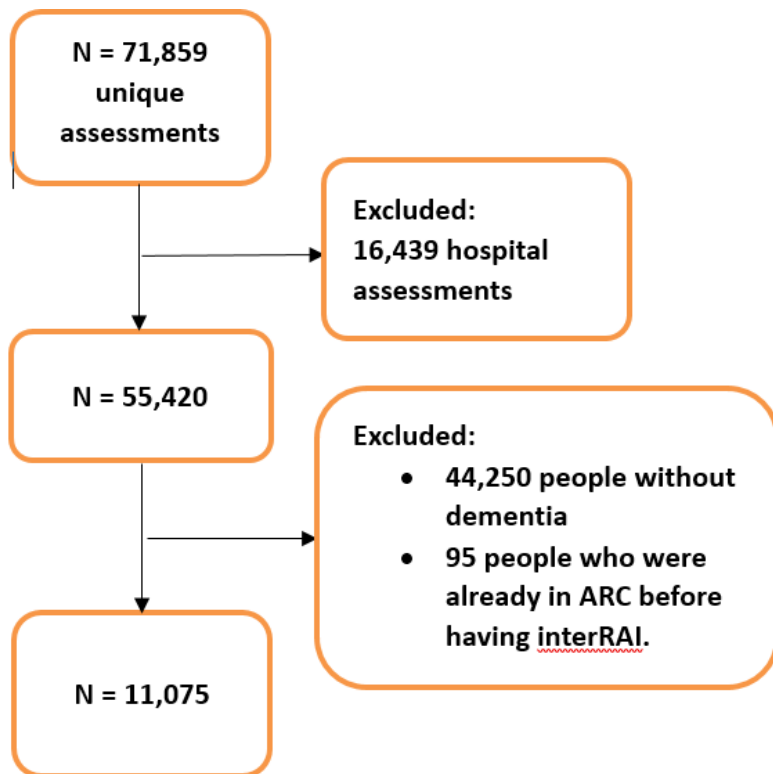


Figure 2. Survival Curves of People with Dementia at different Social Support Levels

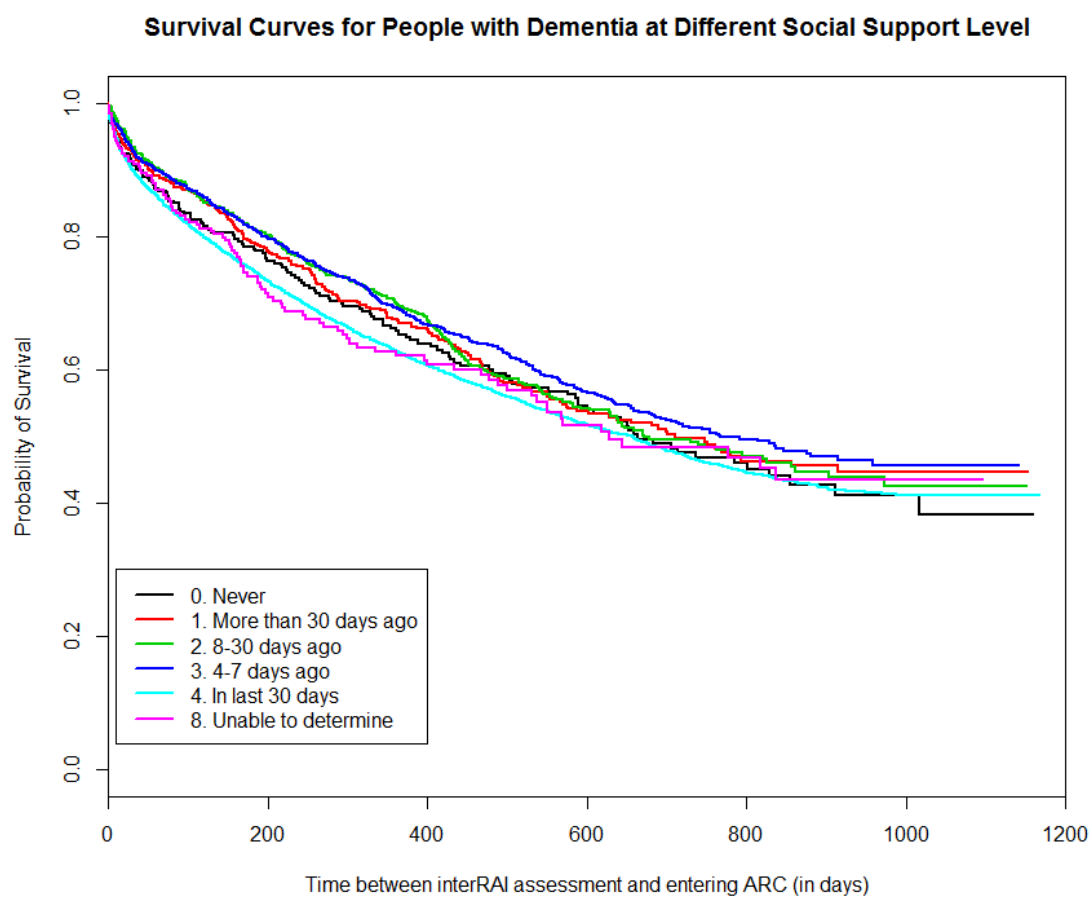


Table 1. Frequency of Each Social Support Level

Social Support	Frequency	Percentage
0. Never	335	3.2%
1. More than 30 days ago	587	5.3%
2. 8—30 days ago	862	7.8%
3. 4—7 days ago	1581	14.3%
4. In last 3 days	7435	67.1%
8. Unable to determine	254	2.3%
Total	11075	100%

Table 2. Demographics of People with Dementia

	Total			Not in ARC			In ARC	
	n	(%)		n	%		n	%
Age(years)								
65	609	(5.5)		433	(71)		176	(29)
70	1269	(11.5)		863	(68)		406	(32)
75	2295	(20.7)		1422	(62)		873	(38)
80	3014	(27.2)		1830	(61)		1184	(39)
85	2645	(23.9)		1492	(56)		1153	(44)
90	1243	(11.2)		676	(54)		567	(46)
Sex								
Female	6471	(58)		3893	(60)		2578	(40)
Male	4604	(42)		2823	(61)		1781	(39)
Ethnicity								
European	9565	(86)		5572	(58)		3993	(42)
Maori	738	(7)		552	(75)		186	(25)
Pacific	430	(4)		360	(84)		70	(16)
Asian	241	(2)		163	(68)		78	(32)
Other	98	(1)		68	(70)		30	(30)
Marital status								
Married	5834	(52.7)		3643	(62.4)		2191	(37.6)
Civil union de facto								
Widowed	4213	(38)		2441	(57.9)		1772	(42.1)
Separated	194	(1.8)		124	(63.9)		70	(36.1)
Divorced	464	(4.2)		282	(60.8)		182	(39.2)
Never married	306	(2.8)		183	(59.8)		123	(40.2)
Other	64	(0.6)		43	(67.1)		21	(32.9)
Living Arrangement								
Spouse/partner only	4987	(45)		3081	(61.8)		1906	(38.2)
Spouse/partner and other(s)	553	(5.0)		385	(69.6)		168	(30.4)
Alone	3582	(32.3)		1968	(54.9)		1614	(45.1)
Child (no spouse partner)	1511	(13.6)		990	(65.5)		521	(34.5)
Other relatives	234	(2.1)		174	(74.4)		60	(25.6)
Non-relatives	135	(1.2)		71	(52.6)		64	(47.4)

Table 3. Effects of Social Support on ARC (Unadjusted Relative Risks)

Social Support	Relative Risk of Entering (unadjusted) ARC	95% Confidence Interval	
		Lower limit	Upper limit
0. Never	1 (reference)	-	-
1. more than 30 days ago	0.94	0.77	1.16
2. 8—30 days ago	0.92	0.76	1.12
3. 4—7 days ago	0.87	0.73	1.05
4. In last 3 days	1.08	0.91	1.27
8. Unable to determine	1.03	0.80	1.33

Table 4. Effects of Social Support on ARC (Adjusted Relative Risks)

Social Support	Relative Risk of Entering (adjusted) ARC	95% Confidence Interval	
		Lower limit	Upper limit
0. Never	1 (reference)	-	-
1. more than 30 days ago	0.96	0.78	1.18
2. 8—30 days ago	0.94	0.78	1.14
3. 4—7 days ago	0.89	0.74	1.06
4. In last 3 days	1.09	0.92	1.29
8. Unable to determine	1.03	0.80	1.33

References

Ministry of Health. (2013). *New Zealand Framework for Dementia Care*. Wellington: Ministry of Health.

Topo, P. (2009). Technology studies to meet the needs of people With dementia and their caregivers: A literature review. *Journal of Applied Gerontology*, 28(1), 5-37.