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Differences between the Francophone and Anglophone ethno-linguistic groups in the home care setting of Ontario

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Differences between the Francophone and Anglophone ethno-linguistic groups in the

home-care setting of Ontario

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– Pablo Neruda

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Abstract

Although Francophones in Ontario represent the largest population of French-Canadians outside Québec, little is known about this population, and especially about the older members of this ethno-linguistic group. The scarce literature reports that French-Canadians generally have lower service utilization, lower health status and are at risk of psychological distress compared with Anglo-Canadians. One could postulate that these disparities would be present to a greater extent in Ontario because Francophones are more of a minority. This thesis uses both bivariate statistics and multilevel linear modeling to examine differences between the linguistic groups using data from the Resident Assessment Instrument - Home Care (RAI-HC) collected from the year 2000 aspect of the Health Informatics Project in Ontario. This dataset includes 197 (3.5%) Francophones in a total of 4, 764 home care clients. The results of the bivariate analysis showed that there are differences between older Francophones and Anglophones regarding, socio-economic status, physical health and mental health. The findings of the multilevel linear modeling indicate the variables were all nested within the various communities. No significant differences existed regarding pain, Activities of Daily Living (ADL), service utilization and frailty. Significant differences were found regarding instrumental ADL, Methods for Assigning Priority Levels, Depression, Cognition and Communication in all cases Francophones tend to be more at risk for these health disparities in general, with an increased risk when residing in communities where they were in greater minority. The results also have relevance to the use of the RAI-HC as an assessment tool for minority linguistic groups.

Differences between the Francophone and Anglophone ethno-linguistic groups in the home-care setting of Ontario

Literature Review

Introduction

"There can hardly be conceived of a nationality more destitute of all that can invigorate and elevate a people, than that which is exhibited by the descendants of the French in Lower Canada, owing to their retaining of their peculiar language and manner. They are a people with no history and no literature" – John Lambton, Earl of Durham, 1839 (cited in Fraser, 2006, p.16). This quote is taken from an official report submitted by Lord Durham, and represented the policy and governance of Canada for over 160 years (Fraser, 2006). This general and historical attitude towards the minority linguistic group of this country had a large impact on the Francophone population throughout the past two centuries. It may also have affected the aging of Francophones in minority settings.

In Canada, we are blessed with several cultures, three of which we consider the "founding cultures" of our Canadian society. These are the Aboriginal or Native cultures, the English culture, and the French Canadian culture. Without embarking in a lengthy history lesson, one must simply know that the dominant language and culture in Canada is that of the English (Fraser, 2006). Therefore, research on aging in this country has largely concentrated on this dominant cultural-linguistic group. Aging studies regarding both Aboriginal Canadians and French Canadians are sparse.

There are currently over 450 000 Francophones in the province of Ontario, which represents the largest population of French-Canadians outside Québec and of this amount, over 75 000 are over the age of 65. This represents roughly 17% of the Franco-Ontarian population (Statistics Canada, 2008). However little is known about this portion of the population. Francophones in Ontario hold a special status because the province is one that is partially bilingual, meaning that it is bilingual in accordance with the French Language Services Act (1986) and not by the constitution. The Act implies that this population should receive services in French; however, it is not necessarily guaranteed that services will be in their mother tongue. This situation is certainly true for those living as part of a minority community. Although Franco-Ontarians represent a small portion of the general provincial population, in Eastern (15%) and North-Eastern Ontario (25.6%), they represent a relatively larger proportion, compared to the provincial 4.7% average (Picard & Allaire, 2005). Francophones are indeed a cultural, ethnic and linguistic minority In Ontario (ACFO,2005 ; Picard & Allaire, 2005).

From a cultural, historical and linguistic perspective, Francophones in Ontario are similar to those in Québec. There is, however, a significant environmental difference between the linguistic majority of Francophones in Québec compared with the minority of Francophones in Ontario. Because Francophones from Québec represent approximately 86% of Francophones in Canada (Statistics Canada, 2008), studies examining the differences between Francophones and Anglophones in Canada do not translate into accurate description of the reality in Ontario, because of minority situation of Ontario. One could also question the validity of national level studies. All of these

studies are based on Statistics Canada data, the federal government uses tests and indexes that have been translated, and we do not know the validity of these translated instruments. It is also impossible to know the language of the interviewer with relation to the participant. Another limitation of the available literature is the lack of distinction between statistical significant findings and clinical significance, meaning that a 1% difference may be statistically significant but that may not be significant in a practical or meaningful manner. This being said such studies will be examined to add context to the examination to older Francophones in Ontario. The purpose of this review is to examine various literatures that attach themselves, in one way or another, to the experiences of Francophones aging in Ontario. Along with this review, this study hopes to arrive at a logical hypothesis regarding the experience of this marginalized linguistic-cultural group. This study will also examine and analyse a health database; several aspects of health will be closely examined such as; socio-economic status and its role in health, the utilization and availability of health services, and levels of physical and mental health.

A key issue that may affect Franco-Ontarians is marginalization. "Because English is the dominant language spoken by most Canadians, non-English-speaking Canadians are at greater risk of marginalization and exclusion and, therefore, also at greater risk for depression and/or distress" (Cairney & Krause, 2005). According to some "the inability to speak English may also result in the misdiagnosis of health problems or competency levels" (Wister et al., 1996). It is also important to note that, even if one is fluent in the English language, once these individuals age, they will often revert to their first language (Klodas, 1989). Recognizing these health risks, one can understand the importance studying the effects of aging on this ethno-linguistic group.

Ethnicity, Language and Culture

Before examining the various issues concerning elderly members of the Franco-Ontarian population, certain important terms should be reviewed. Words like culture, ethnicity and minority are common when examining one such population. There is no clear definition of a Franco-Ontarian, nor what Franco-Ontarians are. Franco-Ontarians evidently share two commonalities: language and geography. However Franco-Ontarians are more than simply individuals speaking French as their mother tongue and living in Ontario. This group of individuals also share a common and distinct history and culture. Jutreau (2000) postulates that in a naturalistic discourse, ones ethnicity is not defined by their race, but rather their social association to a group that shares a common history, culture and language. With the aide of this definition, Bourbonnais (2007) concludes in her literature review that we must consider Franco-Ontarians as an ethnic group; that is, a group that shares a common history, language and culture. She adds that one can also postulate that the socio-economic and political relationship between the minority Franco-Ontarians and the majority Anglophone population can exert a certain influence on the health of this ethno-linguistic group.

Clearly in Ontario, Francophones belong to a minority group. In popular jargon the term minority group is understood to describe a group of individuals that have a smaller numerical size than the rest of the population. Seyanian, Atuel and Crano (2008) argue that the definition is more complex than simply the size of a population. The authors demonstrate in survey research that respondents associated with minority group membership are associated with a lack of power, less favourable social

conditions and lower status. They concluded that there is a negative stigma attached to minority groups.

Socio-Economic Status

The purposes of examining socio-economic status (SES) in relation to health are simple. It is well known that levels of SES are related to perceived well being (Clarke, 2000) and health (Marks, 2006 and Mulatu & Schooler, 2002), in a Canadian population (Buckley, 2006; McKellar, 1999; Orpana & Lemyre, 2004). Socio-Economic Status is at the core of various health disparities; income, education, social support and employment have all been shown to be related to one another and to the health and well being of an individual (Spitzer, 2005). The study of SES and therefore of income, employment and education are of great relevance to the study of aging. "Importantly, the relationship between poor health status and socio-economic status often emerges with age such as that health problems associated with maturation are reported at an earlier age by those who are less affluent" (Spitzer, 2005, p.S87).

The relationship of SES and quality of life varies by country. One would expect to find a significant relationship between these two factors in developing countries, but the relationship also exists in developed countries. von Dem Knesebeck, Wahrendorf, Hyde and Siegrist, (2007) examined data from the 2004 Survey of Health, Ageing and Retirement in Europe. This survey included over 15,000 individuals over the age of 65, from ten developed European countries. They found that in the aging populations of these countries there is a relationship between SES with health and well-being. The relationship did vary slightly from one country to another, but was evident in some degree in all ten countries.

These observations also apply to older Canadians. Buckley and colleagues (2006) studied the results of two different longitudinal surveys, the Survey of Labour and Income Dynamics and the National Population Health Survey to establish the link between the SES and health. Over two surveys, more than 20,000 individuals over the age of 55 were questioned two to three times over a six year period. The results effectively determined that SES does play a role in the health and well being of an individual. The findings from this study might seem surprising because Canada has a 'public' health care program, and thus everyone should have an equal quality health. However, the 'public' health care program only covers what is deemed as being 'essential services', which means that about 30% of one's health expenditures are paid directly by the patient (Canadian Institute of Health Information, 2007).

In an article reviewing literature about the concepts of social capital and social determinant, and their influence on health, Bouchard, Gilbert, Landry and Deveau (2006 p.S18) state that "data have shown that members of Francophone communities [outside Québec] are generally older, less educated, and less represented in the workforce. Minority Francophones tend to live in economically disadvantaged regions. This makes it harder to develop and access social resources." This broad statement was made in regard to studies based on the National Population Health Survey of Statistics Canada and other Statistic Canada census information. Bouchard et al. (2006) also mentioned that several studies have found this statement to be true for Franco-Ontarian population.

Picard and Charland (1999) reported, with the use of Statistics Canada data, that Franco-Ontarians on average have lower incomes than the rest of Ontarians ($27 004

vs. $27 309) this difference is quite small and not significant. However, when they examined those over the age of 65 the difference is more pronounced ($21 000 vs. 25 500$). This is an indication that older Franco-Ontarians are moderately disadvantaged financially in comparison to the rest of the province's older citizens.

McKellar (1999 p. 295) reported, "our analysis of the various indicators of SES indicates that older Franco-Ontarians have known unfavourable living conditions." This statement was made in response to analysis of data from the Ontario Health Survey, which included 61 000 respondents. However, the data this statement was based on was not included in the author's publication and is thus unverifiable.

The Deuxième Rapport sur la santé des francophones en Ontario (DRSFO; 2nd Report on the Health of Francophones in Ontario; Picard & Allaire, 2005) came to the same conclusion as McKellar (1999) in regard to the SES of Franco-Ontarians. The DRSFO (2005) used data from the Canadian Community Health Survey 2000-2001 and data from Statistics Canada. Their analysis showed that the unemployment rate is larger for Francophones over the age of 75 in comparison to the rest of the province within the same age category (12,5% vs. 5.9%). The Office of Francophone Affairs also reported that 17.8% of older Franco-Ontarians are living below the low-income cut-off in comparison to the 14.6% provincial average (Fougère, 2006).

As much as revenue and income are important factors for an individual's SES, they are not the only ones. Picard and Charland (1999), once again using Statistics Canada census data, noted that Franco-Ontarians are less likely to hold a university degree (12% vs. 15%) in comparison to the rest of the province, and also tend to be less literate. Statistics Canada gives guidelines for four different levels of literacy. Level

1 is comprised of individuals who cannot read and admit that they have a problem; level 2 are individuals who can read but with great difficulty and limitations; level 3 are individuals that can read well but have difficulties with more complex tasks; and finally level 4 refers to individuals who can read with ease (Wagner, Crobeil, Doray & Fortin, 2002). According to Picard and Charland (1999), approximately 30% of Francophones over the age of 16 cannot read (level 1) in French or in English, and about another 30% admit to having significant difficulties in reading (level 2). When examining the SES of older Francophones in Ontario, evidently education and reading abilities are significant factors. The vast majority, over 80%, of Francophones over the age of 65 cannot read (level 1 and 2). It is argued that this statistic could be the result of banning education in French when individuals in this age group were of school age. From 1912 to 1927 the teaching of the French language and teaching subjects in French was illegal in the Province of Ontario in accordance with Bill 17. Although this ban only lasted 15 years, it had a lasting effect on the education of young Francophones in the province (Sylvestre, 2007; Wagner et al., 2002).

Like SES, social support is also a determinant of one's level of health in later life (Spitzer, 2005). According to Picard and Hébert (1999) Francophones in Ontario are less likely to have good social support in comparison to Anglophones of Ontario. The authors came to this conclusion with analysis of data from the Ontario Health Survey. They found that 90% of Anglophones reported that they had a high level of social support in comparison to 86% of Francophones. However, the authors do not make mention to any statistical significance of this 4% difference.

The aforementioned studies and publications all indicate that older Franco-Ontarians are at a financial and educational disadvantage. The lower SES amongst aging Franco-Ontarians might conceivably put this population at a disadvantage when it comes to physical and mental health.

Health Services

The availability and access to health services for a minority linguistic group is always an issue of great concern. This is what Nápoles-Springer et al. (2005) concluded when interviewing 168 individuals in the San Francisco area. They reported that individuals whose mother tongue was Spanish reported greater satisfaction with the health care system when they had access to a Spanish-speaking physician, and felt they received poorer quality care when the physician did not speak Spanish. A common perception was that the health care providers were less willing to care for Spanish-speaking patients in comparison to the English-speaking patients. However, some individuals were pleased when the physician could speak a minimal amount of Spanish and made a noticeable effort to communicate with non-English speaking patients. This is a clear indicator that individuals of a minority ethno-linguistic group feel better cared for when the providers either spoke or attempted to speak the language of the patient. Some individuals in this study also indicated that they did not go to a physician because they were afraid of not being understood. It is important to note that this study was conducted through interviews with immigrants. Although Franco-Ontarians are not immigrants, this is the only study examining the experience of minority linguistics in regards to health care services.

The aforementioned findings are consistent with the results of Kobayashi's study (2003). Using a multiple logistic regression of the cross-sectional component of the National Population Health Survey, the author found that the likelihood of an older French-Canadian having a physical checkup was decreased by a factor of 0.6 in comparison to older English-Canadians.

In a literature review of the concept of social capital and social determinant and their influence on health, Bouchard et al. (2006, p. S18) reported, "accessibility [to health care services] is three to seven times higher for Anglophones, even in regions designated to provide such services under the Official Languages Act." Therefore, it is no surprise that they also noted, "A higher percentage [of Francophones] say they do not have access to the services they require." These statements were based on information provided by the Report to the Federal Health Minister and by the consultative committee for French-speaking minority communities (2001). However, it is also important to note that in Ontario, Francophones are more likely to visit an emergency room (Boudreau & Farmer, 1999). This finding was mentioned is a publication highlighting key facts from the Ontario Health Survey of 1990, although actual statistics were not presented in that publication.

It was also reported (Picard & Allaire, 2005; Picard & Hébert, 1999) that Francophones over 65 in Ontario were less likely to visit a dentist in comparison to the rest of older Ontarians. Using data from the Ontario Health Survey of 1997 Picard and Hébert (1997), demonstrated that 39% of Francophones between the age of 64 and 75 have visited the dentist in the last year in comparison to 58% of Anglophones. This gap is even larger when examining those over the age of 75 (27% vs. 52%). Picard and

Allaire (2005) found similar results when examining data from the Canadian Community Health Survey of 2001. They noted that 36.8% of Francophones between the age of 64 and 75 have visited the dentist in the last year in comparison to 60% of Anglophones. This gap was, however, slightly smaller when examining those over the age of 75 (35.5% vs. 51.3%).

Service in one's primary language is not only a factor affecting the use of general health care services but also of mental health care services. Findings show that older French-Canadians are at high risk of psychological distress (Cairney & Krause, 2005). Could this be because language is a factor in accessing appropriate mental health services? Vasiliadis, Lesage, Adair and Boyer (2005) examined the mental health and well being aspects of the Canadian Community Health Survey, and by estimating models using logistic regression they found that language and education were predisposing factors to the access of mental health services and support was an enabling factor. It was also found that ethnicity is a factor only in Québec, indicating that ethnicity is not a general determinant but language is. In 2001 the Consultative Committee for French-Speaking Minority Communities (2001), also voiced its concern about language barriers in their September 2001 report to the Federal Minister of Health. In this report, they indicated that not only are French language mental health services the most lacking of all the health services in minority Canada, but they are also the most important. Patients have a greater amount of contact with mental health professionals than with other types of health professionals. Thus it is imperative that the provider of such care can communicate with the French-Canadian minorities.

It is also worth noting that Statistics Canada census data from 1996 shows that there is a higher proportion of Francophones in Ontario living in rural locations (population concentration of less than 1000 per 400Km², in comparison to the rest of Ontarians, 17% vs. 22% (Picard & Charland, 1999). This factor may also add to the inaccessibility to various health care services, as well as lower access to jobs and education (Frohlich, Ross & Richmond, 2006). We can thus observe that the Francophone community in minority Ontario is at a great disadvantage when it comes to the availability and usage of health care services.

Physical health

There several elements relating to being a member of an ethno-linguistic group that can have an influence on one's physical health. Certain habits or behaviours that are unique to a community or are commonly found within the culture of such a group may also have an impact on one's physical health. An example of one such behaviour in the French-Canadian culture is smoking. The province of Québec has the world's highest smoking rate for adult women (38%), and smoking rates are generally 5 to 10% higher for French-Canadians than English-Canadians (Steven, 1997; Wharry, 1997). Statistics from the most recent Canadian census demonstrated that the smoking rate in Québec is still higher than the rest of Canada. The average smoking rate of 18.7% (and 10.5% for those over 65) is higher than the national average of 16.5% (and 8.8% for those over 65). This represents the highest smoking rate in comparison to the other provinces (Statistics Canada, 2007). Smoking rates are consistently 5 to 10% higher for Francophones in Québec than for English-Canadians (Wharry, 1997). As it is commonly known, the smoking of tobacco has a devastating influence on one's health and leads to

several various chronic diseases like cancer, asthma and emphysema, among others (Finkelstein, 2006).

The high prevalence of daily smokers also applies to Francophones (23.3%) in Ontario, who smoke more than the Anglophones (18.2%; Statistics Canada, 2005). Of the older members of the Francophone population of Ontario, approximately 14% of Francophones over the aged of 65 smoke in comparison to the 11% of smokers over 65 in the rest of the province (Picard & Hébert, 1999). Boudreau and Farmer (1999) also mentioned that Franco-Ontarian males of middle and older age consume more fatty foods than any other group in the province. It is thus to no surprise that the DRSFO reported that more Francophones in Ontario (17.7%) are significantly more obese in comparison to Anglophones (15%; Picard & Allaire, 2005).

Kopec, Williams and Austin (2000, 2001) found that French-Canadians had a higher prevalence of dysfunctional health. Dysfunctional health was measured by the Health Utility Index, which includes eight attributes: vision, hearing, speech, mobility, dexterity, cognition, emotion and pain/discomfort. The investigators determined that those with a Healthy Utility index score lower than 0.830, a clinical cut-off point, were classified as having dysfunctional health. Kopec et al. (2000, 2001) used data from the Health Utilities Index in the National Population Health Survey from 1994-95, with over 15,000 respondents. The authors found that older French-Canadians (18.1%) had a higher prevalence of dysfunctional health in comparison to English-Canadians (16.4%). When conducting a regression model, taking account of SES (age, sex, income and education), they found that the relative odds of being dysfunctionally unhealthy was nearly double for French-Canadians over the age of 65 (8.5), in comparison to English-

Canadians over the age of 65 (4.6). The odds ratio for those determined to be healthy, having a score of 1.00, were those under 25, well educated, high income, no chronic conditions, no drug use, no hospitalizations, etc.

With use of the Ontario Health Survey (1990), Picard and Hébert (1999) reported that Francophones of Ontario are less likely to perceive their health as being excellent (62%) in comparison to Anglophones (67%). This result was also found in the Canadian Community Health Survey, where 10.9% of Ontarians with English as their mother tongue reported of having either fair or poor self-rated health in comparison to 15.7% of Francophones (Statistics Canada, 2007). Picard and Hébert (1999) also indicated that Francophones in Ontario over the age of 75 are more likely to need external help with their activities of daily living (50%) than Anglophones (43%). Picard and Hébert (1999), and Picard and Allaire (2005) also documented that Francophones have slightly higher levels of a variety of chronic health problems such as asthma, bronchitis, emphysema and hypertension.

Bouchard and colleagues (2006) reported, "Ontario Francophones are less likely to report excellent health. They are more likely to say that their activities are limited due to chronic health problems. The survey [National Public Health Survey 1996-7] also found higher stress levels among Francophones."

The DRSFO also emphasized, using data from the Canadian Community Health survey, that fewer older Francophones in Ontario view themselves as healthy, (39.1% vs. 46.4% for those between the ages of 65 and 74 and 24.5% vs. 36.4% for those over 75). They also noted with the use of the same survey that fewer older Francophones in Ontario see themselves as having good functional health (70.6% vs. 73.3% for those

between the ages of 65 and 74 and 47.3% vs. 52.9% for those over 75; Picard & Allaire, 2005).

Another determining factor of one's overall health is the amount of medication one consumes. This index can serve as both an indicator of one poor health and also as a health risk factor. Hogan, Ebly and Fung (1995) mentioned that potentially inappropriate use of medication was highest in the province of Québec (12.8% of seniors). Both McKellar (1999) and Bouchard et al. (2005) noted that older Francophones take significantly more medications in comparison to the rest of older Ontarians.

We can, therefore, observe that older marginalized groups, such as older Franco-Ontarians are at a great disadvantage when it comes to physical health, both in their perception and in actuality.

Mental Health

When researchers examine the health of a population, the focus is often physical health. As Cairney and Krause (2005) alluded that non-English speakers might be at greater risk for psychological difficulties that are associated with aging, such as depression and other forms of distress. By examining the data of over 5,000 individuals aged 50 and over that participated in the National Population Health Survey of 1994-95, the authors, in their secondary data analysis found that older French Canadians reported significantly more symptoms of psychological distress and depression in comparison to their English counterparts. Psychological distress was measured with a combination of questions regarding depression, nervousness, anxiousness, hopelessness and worthlessness. Francophones had a mean of 0.6 in the psychological

distress measure, in comparison to 0.4 of the Anglophones, a statistically significant difference. Depression was also measured in that study by a short form of the Composite International Diagnostic Interview. Those with French as their first language had a mean score of 4 in comparison to a score of 2.6 of those with English as their first language; again statistically significant. According to the researchers, the lower levels of SES in French-Canadians does have an influence but "alone do(es) not account for the higher rates of distress in this group". It was indicated that French-Canadians also reported having lower levels of social support. This could, according to researchers, represent the marginalization of this cultural-linguistic group by the wider society. The authors postulated that marginalization might be responsible for findings that the French-Canadians would have higher levels of stress. However, they did not find any correlations with the stress variable that could be caused from being in the marginalized situation. Thus "clearly, some other unmeasured aspect of French Canadian experience serves to place members of this cultural group at risk" (Cairney & Krause, 2005, p.827).

Streiner, Cairney and Veldhuizen (2006) found very similar results when examining the epidemiology of psychological problems in the elderly population in Canada. They studied data regarding mental health and well-being from the Canadian Community Health Survey, which included over 12,000 individuals over the age over 55. Their survey evaluated respondents for five psychiatric/psychological disorders: major depression, bipolar disorder, social phobia, agoraphobia and panic disorder. Overall the findings were positive. The prevalence of anxiety, mood and any psychiatric disorders decreased in a linear fashion between the ages of 55 and 75. However, the overall lifetime prevalence for mood and psychiatric disorders was found to be higher for

Francophones than for Anglophones. Their findings cross-validated those of Cairney and Krause (2005) using a different methodology. It is, however, important to note the later study did not take account of socio-economic status. It is also noteworthy that both above-mentioned studies examined Francophones at a national level. Because the vast majority of Francophones in Canada live within the same province, Québec, these findings might not necessarily represent Francophones outside this province. That being said, Francophones in Canada, regardless of the province of residence do share some ethnic, linguistic and cultural similarities and history. Literature about minority groups might suggest that these findings would be generalized to Ontario and, perhaps in greater magnitude (Seyanian et al., 2008), however, scarce reliable scientific literature might prevent concluding this.

When it comes to mental health in Ontario, the differences between Francophones and the rest of Ontarians are not as clear. There are few encompassing studies that examine the mental health of Francophones in Ontario. Using data from the Canadian Community Health Survey (2001), the DRSFO (Picard & Allaire, 2005) reported that Francophones tend to consult a mental health professional more frequently than Anglophones, 9.3% vs. 8.5%; however, this was not found to be statistically significant. This report also mentioned that there is no significant difference between levels of self-reported depression among Francophones (4%) and the rest of Ontarians (5%).

Bouchard et al. (2006) made brief mention in their analysis of data from the National Population Health Survey that Francophones in Ontario on average had higher

levels of stress in comparison to the rest of the population. The exact statistics and ergo their significance were not included in the publication.

Cairney and Krause (2005) hypothesise that marginalization could be the reason for higher distress among Francophones. With data from the Canadian Community Health Survey (2001), the DRSFO (Picard and Allaire, 2005) found that Francophones in Ontario are more likely to state that they have a weak sense of belonging with the community that they live in, and this is especially true for Francophones over the age of 65. 25.2% of Francophones in Ontario between the ages of 65 and 74 state that they have a high sense of belonging in comparison to 26.3% of Anglophones. This difference in the sense of belonging is even larger when they examined Francophones over the age of 75 (26.8% vs. 29.7%).

The aforementioned studies provided no clear indications of the relative psychological health of Francophones in Ontario. Considering that access to a mental health professional in French is an issue recognized by the Consultative Committee for French-Speaking Minority Communities (2001), this issue clearly needs to be addressed and examined. It should also be noted that none of these studies examine the older members of the Francophone population.

Conclusion

In summary, the health disparities of Francophones in Canada have not been well documented, and even less research focused on older people within this group. What has been documented with the use of large national and provincial surveys include: lower levels of education, income, literacy and social support; all factors contributing to lower levels of socio-economic status. Review of these studies also

indicated issues with health service utilization and availability. Francophones were also found to demonstrate significant differences when it came to physical health. These differences include notably overall dysfunctional health, lower levels of perceived health, higher levels of chronic health problems and higher medication usage. When it comes to the mental health of Francophones little is known. It has been documented that French-Canadians are at greater risk of psychological distress, yet very little is actually known at a provincial level.

Hypotheses

The purpose of this study is to examine and compare the health status of older Franco-Ontarians who have been evaluated on the RAI-HC with older Anglo-Ontarians. When one examines the scarce literature about the health of Francophones in Ontario one can hypothesize that there will indeed be differences between this minority ethno-linguistic group and Anglo-Ontarians. With the use of Multilevel Linear Modelling (MLM) analysis and conventional statistical methods the aim is to determine possible differences between the Francophones and Anglophones measured with the RAI-HC. In concordance to the abovementioned literature, we expect to find differences in the spheres of socio-economic status, health services, physical health and psychological health.

It is hypothesized that Francophones will have lower levels of education, and higher levels of economic trade-offs than the Anglophone Clients. With regards to health services, it is expected that Francophones will use special treatments and therapies less than Anglophones and the same can be said with service utilization; however, it is expected that Francophones will have greater service usage when residing in

communities with a higher concentration of Francophones. As for physical health, Francophones will have higher levels of smoking, overall medication usage and disease diagnoses. Francophones will also have lower levels of oral health and perceived health. When it comes to psychological health it is expected that Francophones will have higher consumption of psychiatric medications, and higher levels of depression and problems with cognition. It has been postulated in the literature that being a minority is responsible for psychological distress, ergo, the level of depression and cognitive problems will decrease when the client is residing in a community with a high concentration of Francophones. The same can be said regarding communication problems, being a linguistic minority, it is expected that Francophones will be evaluated as having greater difficulty with expression and comprehension but this well also be relative to the density of the Francophone population in the communities.

This thesis will also examine a wide variety of other health determinants and it is expected that Francophones will be at greater risk. This analysis hypothesizes that in general Francophones in communities with a smaller proportion of Francophones will be at a greater risk.

Method

Resident Assessment Instrument Home-Care (RAI-HC)

A variety of methods can be to examine the various topics and questions postulated in the previous sections. One can examine large scale, self reported data (e.g. Statistics Canada) as used in most of the aforementioned studies. However, this information is subjective, may be incomplete and usually doesn't examine all the factors affecting the older members of a population. An alternative type of data exemplified is

the Resident Assessment Instrument for Home-Care (RAI-HC) 2.0. The RAI is a comprehensive assessment instrument that measures the health and well being of individuals receiving home care "in such areas as mood, behaviour, communication ability, disease and mobility" (Brink & Stones, 2007). "The initial purpose of the MDS 2.0 was for care planning" (Stones, Clyburn, Gibson & Woodbury, 2006), but has also proven to be a good tool for research. The main reasons for its use as a research tool are as follows.

First, since 2002 the RAI-HC has been the mandatory assessment system used by Ontario case managers in all 42 Community Care Access Centres (CCACs) for home care clients who are expected to receive services for 60 days or more. CCACs are single-point entry agencies with the responsibility of determining the need for home care, type of facility placement and for contracting community-based services (Zyczkowska, Szczerbins, Jantzi & Hirdes, 2007). Archived RAI-HC data exist on a large sample of older Ontarians. It is a useful tool for researchers because the data has already been collected by trained assessors and shown to have high levels of reliability, especially inter-rater reliability (Morris et al., 1997).

Second, RAI-HC data includes responses to over 230 items on a wide variety of measures (Abicht-Swensen & Debner, 1999; Stevenson, Brown, Dahl, Ward & Brown, 2006; Morris et al., 1997). Originally, the RAI-HC consited of 2 elements: the Minimum Data Set (MDS)-HC and the Clinical Assessment Protocols (CAPs). The MDS-HC enables the user of the instrument to assess multiple domains of health, physical and mental functioning, social support and services used. The MDS-HC also contains some items that can serve as triggers to determine if the individual needs further assessment

for a specific problem. The CAPs provide guidelines for further treatment and assessment (Morris et al., 1997).

The MDS-HC, therefore, provides information on a CCAC client's strengths and needs, and places that information into an individualized care plan. It contains measures of cognition, functional status, communication, vision, psycho-social well-being, mood, disease diagnoses, health conditions, activity level of preferences, medication and treatments or procedures (Brink & Stones, 2007). Among the wide variety of measurements and traits that the MDS-HC examines, the demographic information it gathers is encompassing, including information on age, gender, ethnic/racial origin, marital status, education and most importantly for this thesis, primary language. The RAI defines primary language as the "language the client primarily speaks and understands" (RAI-HC Manual, 2003, p. 32).

The RAI-HC's items can be combined into different scales and sub-scales to measure different constructs. For example, there are 30 Client Assessment Protocols (CAPs), which are problem-oriented frameworks for additional assessment based on problem identification: if a CAP is triggered, further assessments should be made in that area of concern. There are CAPs measuring cognition, delirium, psychosocial well-being and dental care, to name a few (Centers for Medicare & Medicaid Services, 2002). A full list of the CAPs areas is found at table A2.

The CAPs are one type of scale built in to the RAI; there are also other outcome measures, such as: the Depression Rating Scale (MDS-DRS; Burrows, Morris, Simon, Hirdes & Phillips, 2000); the Cognitive Performance Scale (MDS-CPS; Morris et al., 1994); the Activities of Daily Living Scale (MDS-ADL); Instrumental Activities of Daily

Living (Morris, Fries & Morris, 1999); the Pain scale (Fries, Simon, Morris, Flodstrom & Bookstein, 2001); the Method for Assigning Priority Levels (MAPLe; Hirdes, Poss & Curtin-Telegdi, 2008); and the Changes in Health, End-stage disease and Signs and Symptoms (CHESS; Hirdes, Frijters & Teare, 2003) .

Even though this data set is available, large, reliable and encompassing, it by no means represents the general population of older Ontarians. Individuals who are in this database are present because they need care in the home. Consequently, results of any analysis of the data cannot be generalized to the larger population. However, analysis of RAI data can give us an indication of the presence of a problem in a population of home care clients.

Variables

There are several bivariate outcome variables of interest in this study. Those concerning the socio-demographic description of the clients, service utilizations, variables relating to physical health, and the variables pertaining to psychological health will be examined, a complete list of these variables and their RAI-HC codes is found at table A1. In terms of RAI outcome measures, the Depression Rating Scale (MDS-DRS), the Cognitive Performance Scale (MDS-CPS), the Activities of Daily Living Scale (MDS-ADL), Instrumental Activities of Daily Living (MDS-iADL), Pain scale, the Method for Assigning Priority Levels (MDS-MAPLe) and the Changes in Health, End-stage disease and Signs and Symptoms (MDS-CHESS) are all of interest. The study will also examine the various Client Assessment Protocols (CAPs); a list of the CAPs areas are found at table A2.

Depression Rating Scale (MDS-DRS)

The Depression Rating Scale (MDS-DRS) is comprised of seven items related to mood and behaviour and can be used as a clinical screening tool for depression. The following seven items are combined to create a 14 point single scale (ranging from 0 to 14; Hawes, Fries, James & Guihan, 2007): 1) Resident made negative statements, 2) Persistent anger and irritability with self or other, 3) Expressions of what appear to be unrealistic fears, 4) Repetitive health complaints, 5) Repetitive anxious complaints/concerns, 6) Sad, pained, worried facial expressions and 7) Crying, tearfulness (Burrows et al., 2000). To score the MDS-DRS, a score of 0 is given if the indicator has not been exhibited in the last 30 days. A score of 1 is given if the type of behaviour has been exhibited at least once in the last 30 days, and up to five days a week. Finally a score of 2 is given if the indicator is exhibited daily or almost daily (6,7 days a week; Burrows et al., 2000).

With regards to the validity of the MDS-DRS, there is conflicting evidence. Burrows and colleagues (2000), report that the scale has a 0.69 correlation with the Cornell scale and a 0.70 correlation with the Hamilton Depression Scale. It was also mentioned that the scale had a 91% accuracy in detecting depression. The authors did indicate limitations in their study, primarily that they relied heavily upon a small sample size from only two nursing-home facilities.

Martin et al. (2007) makes mention that the MDS-DRS was a significant predictor in detecting the presence of a new (within the last 3 months) diagnoses of depression, with a Cronbach's alpha of 0.74. This study also makes mention that two other MDS items were found to be related to the diagnoses of depression: 1) Sadness over lost

roles and 2) Withdrawal from activities. However, other studies have found that the MDS-DRS does not have high validity when compared to other depression measures. Anderson, Buckwalter, Buchanan, Maas & Imhof (2003), found that the MDS-DRS has a correlation ranging from 0.09 to 0.23 with the Hamilton Depression Rating Scale and a correlation ranging from -0.07 to 0.19 with the Geriatric Depression Scale. Koehler et al. (2005), also found that the relationship between the MDS-DRS and the Geriatric Depression Scale was not statistically significant.

Cognitive Performance Scale (MDS-CPS)

The Cognitive Performance Scale (MDS-CPS) uses RAI items on memory impairment, level of consciousness and decision making to create a 6 point scale, from 0 (intact cognition) to 6 (very severe impairment; Hawes et al., 2007). The five RAI items that the MDS-CPS utilizes to determine cognition are: 1) Presence of a coma, 2) Short-term memory, 3) Cognitive skills for daily decision making, 4) Making self understood by others, and 5) ADL self-performance in eating. The five items were found to be reliable with an average inter-rater reliability of 0.85. The scale was validated against scores from the Mini Mental State Examination (MMSE) and the Test for Severe Impairment (TSI). The validity against these two scales was Eta^2 of 0.75 with the MMSE and an Eta^2 of 0.80 for the combined MMSE and TSI (Morris et al., 1994).

Other studies have also found high validity between the MMSE and the MDS-CPS. Paquay and colleagues (2006), stated, "(MDS-)CPS and MMSE demonstrated good and almost similar performance for the detection of cognitive impairment in nursing home residents." Landi et al. (2000) found that the MDS-CPS has an R^2 value of 0.81 with the MMSE. This being said, van der Steen et al. (2006) found that if the

ADL were included in the MDS-CPS accuracy of prediction was increased. A Swedish study examining nursing home staff views of the MDS-CPS found that the scale could contribute to improve the quality of care, and the staff thought that the scale "forced" them to in a positive sense to ask more questions. "The CPS-MDS contributed to improve the co-operation, responsibility, engagement and also continuity between caregivers" (Hansebo, Kihlgren, Ljunggren & Winbald, 1998, p. 650)

Activities of Daily Living Index (MDS-ADL)

The Activities of Daily Living index (MDS-ADL), is a summary scale that combines self-performance items relating to 1) Dressing, 2) Personal hygiene, 3) Toilet use, 4) Locomotion, 5) Transfer, 6) Bed mobility and 7) Eating, with scores that range from 0 (no impairment) to 6 (total dependence; Morris, Fries & Morris, 1999; Hawes et al., 2007). The MDS-ADL was found to be a valid tool against the Barthel ADL index with a R^2 of 0.74 (Landi et al., 2000). The MDS-ADL was also found to be reliable: using the MDS-ADL during three assessments over a seven day period, Graney and Engle (2000) found high stability in the index over the three assessments.

Instrumental Activities of Daily Living Scale (MDS-iADL)

The instrumental Activities of Daily Living Scale (MDS-iADL), is based on a summary of seven MDS items: 1) Meal preparation, 2) Ordinary house work, 3) Managing finances, 4) Medications, 5) Phone use, 6) Shopping and 7) Transportation. The scores range from 0 to 3 for every item and are summed together to make a scale with the higher scores showed greater difficulty with iADLs (Hawes et al., 2007). The

MDS-iADL was validated against the Lawton Index with a R^2 value of 0.81 (Landi et al., 2000).

Pain Scale

The Pain Scale uses two MDS items: 1) Pain frequency and 2) Pain intensity to create a scale from 0 to 3 (Hawes et al., 2007). The Pain Scale has been found to be predictive of pain with the Visual Analogue Scale (VAS) for nursing home residents, with Kappa = 0.707. Of those indicating the absence of pain on the MDS Pain Scale, 93% also indicated no pain with the VAS (Fries, Simon, Morris, Flodstrom & Bookstein, 2001).

Method for Assigning Priority Levels (MDS-MAPLe)

The Method for Assigning Priority Levels (MDS-MAPLe) is an algorithm that takes various MDS items and scales to classify clients into 5 priority levels based on their risk for adverse outcomes, from low to very high (Hawes et al., 2007). The MAPLe scores were compared against three different dependent variables: admittance to long-term care; caregiver distress; and seeing themselves or by others as being better off elsewhere. It was found that the risk of long term care home placement increased threefold when comparing the low to the moderate category of the MAPLe. This jumped to a tenfold increase when comparing the low and the very high MAPLe category. The risk for caregiver distress was found to be fivefold higher between the low and moderate category, and this figure jumped to a twenty-six fold difference when comparing the low to the very high MAPLe categories. Similar patterns were found with clients rating that they would be better off elsewhere. These increasing in were found to be true in 9

different regions, both provinces and countries. Higher MAPLe score was also found to be associated with a higher weekly cost of formal care (Hirdes, Poss & Curtin-Telegdi, 2008).

Changes in Health, End-stage disease and Signs and Symptoms (MDS-CHESS)

The MDS Changes in Health, End-stage disease and Signs and Symptoms (MDS-CHESS) scale identifies clients who are at risk for serious decline, mortality, and clinical instability (Hawes et al., 2007). It combines eight MDS items to create a continuous measure. These MDS items are: 1) Vomiting, 2) Dehydration, 3) leaving 25% of food uneaten, 4) Weight loss, 5) Shortness of breath, 6) Deterioration in cognition, 7) ADL decline and 8) End-stage disease. The scale was found to be significantly predictive of mortality; the risk of mortality was 10.5 times higher for those at the high end of the scale than those at the low end (Hirdes, Frijters & Teare, 2003).

Statistical Analysis

The binary variables were analyzed by conventional methods (t-tests and chi-square analyses), for these analyses a p value below 0.05 will be considered significant, this being said p values slightly higher than 0.05 will be discussed. The reason is that most of the variables reflect illness and service utilization factors that are presumed to be present before the individuals became clients of the CCAC in there respective regions. Consequently, the assumption that observations form the individuals were independent of influence by CCACs was presumed to be valid. Because of the

preliminary nature of this study, no correction was done for the number of comparisons which may increase type I error.

For every continuous dependent variable a series of multilevel linear models were used to arrive at a final model. In all the models, the CCACs were entered as a random variable. The first analysis, the null model, examined whether the intercepts varied, i.e., if there were differences in the dependent variables across the CCACs. If the intercept is found to be significant, this indicates that the variables are nested within CCACs. In a second model, the primary variable of interest, the primary language spoken, was introduced as a fixed variable both at the level of the individual client and as the mean of clients in the CCAC, and also the interaction between language at the individual and group levels. A final model included the fixed variables of education (proxy for SES), age and sex. The purpose was to examine if the language of the individual and the CCAC continue to have an influence on the dependent variable when the other variables are accounted for.

Multilevel Linear Modelling (MLM)

To further examine the various issues raised in the aforementioned literature, it is important not to think in terms of conventional statistical assumptions. The data collected from the RAI-HC, should be considered as nested and multilevel. Conventional statistics presume that all participants are independent from one another and have no common sources of grouping. This is not the case with CCAC clients. Individuals who are assessed for home care are nested within a CCAC. Individuals within the same CCAC share many experiences and are assigned to the CCAC in a non-random manner, typically by location of residents (or within a same community).

One can also postulate that various CCACs will treat clients differently based on access to different resources, different regional policies and staffing in general. In conventional statistical analysis, we presume that relations among clients, personal characteristics and outcomes are similar regardless of the CCAC (Lee, 2000). This is a clear violation of common sense. Analysis of such information at a single level tends to produce several problems such as: aggregation bias, mis-estimated standard error, heterogeneity of regressions (Lee, 2000) and a dramatic decrease in degrees of freedom (Sibthropp, Witter, Wells, Ellis & Voelkl, 2004).

"Multilevel (or hierarchical) linear modelling (MLM) is for research designs where the data for participants is organised at more than one level" (Tabachnick & Fidell, 2007. p. 781). Multilevel Linear Modelling is the only effective form of statistical analysis that can be used to appropriately analyze the data provided by the RAI-HC. With this form of analysis, it is possible to examine individual differences while taking the nesting variable into consideration. In this case, CCACs are the random nesting variable. Fixed variables include the two linguistic groups (Anglophones and Francophones), dependent measures and the various outcome measures on the RAI-HC (e.g., cognition, depression, communication, pain, ADLs, etc.). It will also be possible to compare the CCACs against each other, allowing for a comparison of the differences in CCACs where there is a large proportion of Francophones, against CCACs where the Francophones are of smaller concentration.

With MLM analysis, it will also be possible to take other factors into account, such as age, gender and, more importantly for this study, education (which will be used as a proxy measurement for the SES). The use of MLM for statistical analysis of RAI data, is

infrequent in the published literature (Maranzan & Stones, 2009) but has, however, been used in a doctoral (Maranzan, 2008) and master's level theses (Armstrong, 2008), however MLM has been used extensively in the epidemiology and education literature.

Database

This study consists of a retrospective population based study using as set of RAI-HC data. The database refers to the first Home-Care assessment of each client assessed in Ontario, using the RAI-HC. This database is from the Health Informatics Project, a pilot project examining the use of the RAI-HC from around the year 2000. Whilst this database is extensive in terms of number of CCAC clients and regional representation, it is not at the census level. For this reason, the present study is considered to be exploratory. This data was analyzed using SPSS 15.0 statistical software. A total of 5,570 clients were included in the first database. Of these clients, 197 (3.5%) were identified as Francophones and 4,764 (85.5%) were identified as Anglophones. Of the 197 (3.5%) Francophones identified 5 (2.5%) of those were also identified as being aboriginal, demonstrating a level of homogeneity in the Francophones. Allophones and those with no information regarding language were excluded from the analysis. Allophones represent 605 (10.9%) and missing data represent 5 (0.1%) of individuals in the data set.

Results

The results section is divided into two parts based on the type of variable analyzed, binary or continuous. These two sections are again divided into several other sections based on themes. For the binary data, the first part is a descriptive comparison of the two populations in question, older Francophones and older Anglophones. The second part presents data regarding health services; the next part describes data referring to physical health and medication usage; the fourth part presents data regarding psychological health, and the final part examines the Client Assessment Protocols (CAPs). With regards to the continuous variables, the results are divided into sections that examine: health services, physical health, psychological health and the overall health of the clients.

Binary Variables

Description of the Francophone Clients

This section provides a description of clients in the RAI database with the known language. Demographic characteristics of sex, age, living situation and marital status will be presented first. The reasons for referral and non-medical determinants of health, including education, economic tradeoffs, and housing will also be presented.

Sex

A significantly higher proportion of clients were female, a difference that was observed for both Francophones (77.2% Female, 22.8% Male) and Anglophones (69.5% Female, 30.5% Male), (χ^2 (1) = 5.251, p=0.022).

Age

The mean age of the Francophone groups was marginally significantly older, at 76.57 years (SD=11.97) in comparison to 74.86 years (SD=14.63) for the Anglophones, t (220.93) = 1.954, p= 0.054.

Living Situation

There were no significant differences between the Francophone and Anglophone groups with regards to living arrangements. The clients in both groups are more likely to be living in a private home with no home care services (Francophones 69.3%, Anglophones 67.9%) and in a private home with home care services (Francophones 23.5%, Anglophones 25.9%), χ^2 (5) = 1.977, p=0.852. There were also no significant differences between the Francophone and Anglophone groups with regards to who lived with the client at the time of the referral. The clients in both groups are more likely to be living alone (Francophones 47.8%, Anglophones 44.2%) and with a spouse only (Francophones 24,4%, Anglophones 29.4%), χ^2 (6) = 3.216, p=0.781 (see table B1).

Marital Status

The marital status of Francophone clients was found to be significantly different than the Anglophone clients. Francophones were more likely to be widowed (52.8% vs. 45.2%), less likely to be married (30.5% vs. 36.2%) and also were more likely to have never married (12.7% vs. 9.1%), χ^2 (6) = 13.308, p=0.038 (see table B2).

Reason for Referral

The reason for home-care referrals differed significantly between the two ethno-linguistic groups. For both groups, especially the French language group, determining

eligibility for home care was the most common reason for home care assessment (Francophones 57.5%, Anglophones 52.3%) followed by post hospital care, which was more common for the English language group (Francophones 24.9%, Anglophones 30.8%). Evaluation for community chronic care was also more common for Anglophones (Francophones 5.0%, Anglophones 10.9%), χ^2 (6) = 28,501, p<0.001 (see table B3).

Education

Francophone clients have been found to have a significantly lower level of education in comparison to their Anglophone counterparts. More Francophones were found to have less than an 8th grade education (42.9% vs. 26.9%), while more Anglophones were found to have an education between grade 9 and 11 (19.4% vs. 22.8%) and at the high school level (13.3% vs. 23.4%). However, these differences were not apparent at post-secondary levels of education, χ^2 (9) = 29,024, p=0.001 (see table B4).

Economic Trade-offs

The RAI-HC does not contain any information regarding the income of a client, however, the instrument does contain an item regarding economic trade-offs. An economic trade-off means that during the last month a client made trade-offs due to limited funds with the purchasing of; prescription medication, home heating, necessary physician care, adequate food and home care. Francophones clients made significantly more economic trade-offs than Anglophone clients, (7.6% vs. 2.9%), χ^2 (1) = 14.501, p<0.001.

Housing

The MDS-HC also includes items that are related to the possible aspects of the home environment that can be hazardous or inhabitable. No significant differences were found between our two groups in most of the categories, except for the bathroom (i.e. having a non-operating toilette, leaking pipes, slippery bathtub, etc.). Francophones tended to have more hazards in the bathroom than Anglophones (4.6% vs. 1.6%), χ^2 (1) = 9.658, p=0.002 (table B5).

Health Services

No significant differences were found between Francophone and Anglophone clients with regards of current hospital stays (table B6), preventative health measures (table B7) and special treatments/therapies. The exception was "none of the above" for which 42.6% (84) of Francophones indicated not receiving any of the aforementioned services in comparison to 33.4% (1591) of Anglophones, $\chi^2(2)=7.200$, p=0.027 (table B8).

Physical Health

This section will examine the various aspect of a client's physical health. Items such as: lifestyle choices including smoking, alcohol consumption, medication usage, oral health, and different disease diagnoses.

Lifestyle

No significant differences were found between the two ethno-linguistic groups with regards to the consumption of alcohol (i.e. client felt the need or was told to cut down on drinking), , client needs to have a drink first thing in the morning, , and tobacco.

Medication use

With regards to the overall number of medications consumed by clients, no significant differences were found, $F_{(213.452)}= -1.772$, p= 0.078. However it should be noted that Francophone clients were found to have higher frequencies of medical oversight, i.e. having a physician to review the client's medication as a whole during the last 180 days. The statistics were 14.3% for Francophone clients and 7.8% for the Anglophone clients, $\chi^2 (1) = 10,686$ p=0.001.

Vision Patterns

A significantly higher percentage of Francophone clients were reported as having visual limitations/difficulties (saw halos or rings around lights, curtains over eyes, or flashes of lights): 10.7% in comparison to the 6.9% of Anglophone clients, $\chi^2 (1) = 4.114$, p=0.043. Furthermore, a significant number of Francophone clients were reported as having a decline in vision, 21.3% versus 12.0% of Anglophone clients, $\chi^2 (1) = 15.287$, p<0.001. Francophones were also found to have on average, more impairment with vision, meaning poorer ability to see in adequate light and with glasses, if needed. Francophones had a mean vision score of 0.5736 (SD=0.9318) in comparison to 0.4071 (SD=0.8077) for Anglophone clients, with a higher score meaning greater impairment, t(4958)=2.817, p=0.005.

Oral Health

No significant differences were found with regards to oral health, and criteria included: problems chewing, dry mouth when eating and problems with brushing teeth/dentures (table B9).

Disease Diagnoses

Out of the twenty-eight possible disease diagnoses, three were found to be marginally significantly different between the two groups. Francophone clients had lower levels of irregularly irregular pulse and HIV infection diagnoses than Anglophone clients. 2.5% of Francophone clients had an irregular pulse in comparisons to 6.7% of Anglophones, $\chi^2(2) = 6.915$, p=0.068. With regards to HIV infection, 1% of Francophone clients were diagnoses with this infection in comparison to 2% of Anglophone clients, $\chi^2(2) = 13.680$, p=0.001. However Francophones had higher levels of glaucoma, 8.1% vs. 5.0%, $\chi^2 (2) = 5.511$, p=0.064 (table B10).

Perceived Health

Francophone clients more frequently stated they felt that they have poor health, 37.6%, versus 31% of Anglophone clients, $\chi^2 (1) = 3.85$, p=0.050.

Psychological Health

Medication Use

Francophone clients were found to be receiving significantly more antipsychotic/narcoleptic medications than Anglophone clients, 9,1% vs. 4.8%, $\chi^2(1) = 7.663$, p=0.006. They were also receiving more hypnotic medications, 7,6% in comparison to 4.0%, $\chi^2(1) = 6.036$, p=0.012. No significant differences were found with regards to the use of anxiolytic, ($\chi^2(1) = 2.664$, p=0.103) and antidepressant medications.

Social Functioning

No significant differences were found between the groups with regards to changes in social activities, involvement and loneliness. Francophones, however, were found to openly express anger with friends/family, 29.7% versus 19.2% of Anglophone clients, $\chi^2(1) = 9.201$, p=0.002. There were also differences between the groups with regards to isolation. Francophones were more likely to be isolated all the time (32.0% vs. 26.7%) in comparison to Anglophones; however, Anglophones were more likely to be isolated for long periods of time (i.e. all morning;33.3% vs. 23.4%), $\chi^2(3) = 13,297$, p=0.004 (table B11).

Mental Health Problem Conditions

No significant differences were found between the two groups with regards to delusions, $\chi^2(1) = 0,138$ p=0.710 or hallucinations, $\chi^2(1) = 2.645$, p=0.104.

Client Assessment Protocols (CAPs)

Significantly more Francophone clients triggered the visual function CAP (41.1% vs. 32.0%), $\chi^2(1) = 7.130$, p=0.008, the cognition CAP (41.6% vs. 32.9%), $\chi^2(1) = 6.500$, p=0.011, and the urinary incontinence and indwelling catheter CAP (36.0% vs. 28.2%), $\chi^2(1)=5.655$,p=0.017. Although more Francophones triggered the aforementioned CAPs, Anglophone clients were more likely to trigger the falls CAP (44.4% vs. 36.5%), $\chi^2(1) = 4.676$, p=0.031 (table B12).

Continuous Variables

Physical Health

Pain Scale

The intercept in the null model was found to have a significant effect on pain scores, meaning that different CCACs had different pain scores (Table C1). A second model was built with language as an individual and group level predictors and their interaction as fixed effects. This model showed no significant fixed effects. Sex, age and education were entered during a third step. Age and education were found to be positive significant predictors to the pain scores.

Activities of Daily Living (ADL)

The null model showed a significant effect on ADL scores because the intercept was significant (Table C2). A second model was again built with the language of the individual, the language of the CCAC and the interaction between them as fixed effects. The fixed effects were not found to be significant. Sex, age and education were entered during a third step, age and education were found to be positive significant predictors to the ADL scores.

Instrumental Activities of Daily Living (iADL)

In the null model, the intercept was found to have a significant effect on iADL scores (Table C3). The second model showed that the language as an individual predictor and it's interaction with the proportionate use of language in the CCAC were significant predictors of iADL. Sex, age and education were entered during a third step. This model again showed, language of the individual and its interaction with the

proportionate language use in CCAC were significant positive predictors, as were age and education. These findings indicate that language was still significant after accounting for the influence of these other factors. It is also noteworthy to examine the directionality of the estimates for the interaction between the language of the individual and the language of the CCAC. In this case, all estimates were negative, indicating that CCACs with a smaller proportion of Francophone clients had a higher iADL score, where higher scores indicate greater dependency.

Service Utilization

For purpose of this analysis, the time of service usage was converted and totaled in minutes. In the null model, the intercept was found to have a significant effect on service use (Table C4). The second model showed non-significant effects of language as an individual or group level predictor, however, it did indicate that the interaction between the language of the individual and the CCAC was significant. The third model also showed non-significant effects of language as an individual or group level predictor, but it find that the interaction was again significant, and as was the sex variable. Again, examining the directionality of the estimates for the interaction between the language as an individual and a group level showed a negative coefficient, indicating that CCACs with a higher proportion of Francophone clients had higher service use.

Method for Assigning Priority Levels (MAPLe)

Once again, the null model demonstrated that the intercept was significant (Table C5). The second model found that interaction between language as an individual and as a group predictor was significant. In the third model the interaction was again found to

be significant. Also sex, age and education were found to be significant predictors to the MAPLe scores. The estimates for the interaction were negative, indicating that CCACs with a smaller proportion of Francophone clients had higher MAPLe scores (higher scores indicate greater risk for adverse outcomes).

Changes in Health, End-stage disease and Sign and Symptoms (CHESS)

In the null model for this analysis, the intercept was found to be significant (Table C6). The second model did not find any significant fixed effects with regards to language. In the third model sex and age were found to be significant predictors to the CHESS scores.

Mental Health

Cognitive Performance Scale

The null model indicated that the intercept was a significant predictor of the CPS (Table C7). The second model found that the interaction between language as an individual and a group level predictor was nearly significant (p=0.06). This interaction was found to be significant in the third model. Age and education were also found to be significant predictors. Again, the directionality of the estimates for the interaction between the language as an individual and a group level predictor was examined. In this case the coefficient was negative, indicating that CCACs with a smaller proportion of Francophone clients had higher CPS score (higher scores indicate greater impairment).

Depression Rating Scale (DRS)

In the null model, the intercept was found to be significant (Table C8). The second model was successful and indicated that the language of the individual and the interaction between language at the individual and group levels were significant predictors of the DRS. The final model showed that the language of the individual and the interaction between language at the individual and group levels were significant predictors of depression, as was age. The directionality of the estimates for the interaction between language at the individual and the group level were negative, indicating that CCACs with a smaller proportion of Francophone clients had higher DRS scores, where higher scores indicate greater levels of depression.

Expression (making self understood)

CCACs differed with regards to expression because the intercept in the null model was found to be significant (Table C9). The second model showed that language at the group level and it's interaction with the language at an individual level were significant predictors of having difficulty expressing one's self. The language of the individual was also nearly significant (p=0.065). The third model showed that language at the group level and its interaction with language at the individual level, along with sex and education. The directionality of the estimates for the interaction between the language of the individual and the CCAC were negative, indicating that Francophones in CCACs with a smaller proportion of Francophone clients had more problems expressing information.

Comprehension (ability to understand others)

The null model showed that the intercept was significant (Table C10). The second model showed that all the fixed effect items were significant predictors. In the third model only age failed to emerge as a significant predictor. The interaction of individual and group level language again showed that Francophones in CCACs with a smaller proportion of Francophone clients had more problems understanding verbal information.

Discussion

The purpose of the present study was to examine and compare data from the Resident Assessment Instrument for Home-Care (RAI-HC) regarding various health related measures regarding older Francophones and Anglophones in Ontario. Methods of statistical analysis including t-tests, chi-square analyses and multilevel linear modeling were used to generate information comparing these two ethno-linguist groups.

Strengths and Limitations of the Research

Despite the contribution of knowledge about the health and status of older Franco-Ontarians this study does have some limitations. These limitations are mainly related to the exploratory nature of this thesis. This study was intended to generate hypotheses in a field of research that is largely unexplored. The main limitation is that the data is not at census level. Consequently, the findings are considered exploratory, intended to guide future research, rather than definitive about Francophone and Anglophone differences in the population studied. Another limitation is the binary classification of individuals into two language categories. Many individuals are able to

speak multiple languages to varying degrees. For example, some individuals may be reported as having English as their primary language simply because they speak it with ease, even if it is actually their secondary language and they have never said otherwise. Individuals could be bilingual/bicultural, which is not captured by the RAI-HC. Also, speaking a particular language does not necessarily mean the person affiliates with a particular culture or ethnicity. With regard to data quality, the study has a number of strengths that offset to some degree the absence of census level sampling. These include a large number of participants, representation from CCACs from across the province and care taken to insure data quality. The later includes data compilation and cross checking by at least two compilers in order to prevent data entry errors. Another strength of the study was the use of MLM to prevent errors associated with correlated data from clients of the same CCACs. Thus this thesis did contribute to research knowledge with regards to both the health of older Francophones in Ontario and utilization of a statistical method. As it will be discussed below, our findings show that there are obstacles regarding communication between the assessors and Francophones, this is an interesting and important finding, but it could also create a potential limitation regarding the accuracy of the data and thus the results.

Socio-Economic Status

Bouchard et al. (2006) reported that Francophones outside Québec tend to be older and less educated in than Anglophones in the province. The findings in this study are consistent with that report. Francophones in RAI-HC dataset are statistically older by an average of 1.71 years and are also less formally educated. Various studies (Picard & Charland, 1999; Picard & Allaire, 2005; Fougère, 2006) alluded to the

financial inequity that exists between these two groups. Unfortunately the RAI-HC does not contain information on the income of a client. However it does contain information regarding economic trade-offs. Francophones were found to make significantly more economic more trade-offs due to limited funds. Mckellar (1999, p. 295) reported that "older Franco-Ontarians have known unfavorable living conditions". Analysis of the home environment found that there were no significant differences between the two groups, with the exception of hazards in the bath/washroom, indicating that both groups generally live in similar conditions. No significant differences were found with regards to the living situation of the clients. In summary, the findings indicate that older Francophones tend to have lower levels of education and higher levels of economic-trade offs, ergo they are at greater risk of health disparities due to their SES.

Health Services

The literature (Kobayashi, 2003; Bouchard *el al.*, 2006; Picard & Charland, 1999) reported that older Francophones are at greater risk of poor health due to limited access to various health services. The present analysis showed that there were no significant differences between the two groups with regards to the time since last hospital stay, preventative health measures, and special treatments and therapy programmes. This being said, Francophones had a higher frequency of receiving any treatment. When examining the quantity (time in minutes) of services utilization of formal care, the model failed to showed an effect of language at the individual and CCAC levels, indicating that there are no significant differences between the two groups. However, the model did indicate that the interaction between the language of the individual and the CCAC was a significant predictor. The direction of the interaction shows that Francophones living

within a CCAC region with a high concentration of Francophones were utilizing formal health services at a greater rate. The information provided from the RAI-HC data, therefore, indicates that there is very little difference between the two groups with regards to health service utilization except in areas with high concentrations of Francophones.

Physical health

Very little information exists that compares the physical health of older Francophones and Anglophones in Ontario. There exists, however, a large amount of literature reporting that Francophones in all age categories and in all provinces tend to smoke tobacco more than their Anglophone counterparts (Steven, 1997; Wharry, 1997; Picard & Hébert, 1999; Boudreau & Farmer, 1999; Statistics Canada, 2005, Picard & Allaire, 2005; Statistics Canada, 2007). The RAI-HC data analysed in this study failed to find such significant differences in either the consumption of tobacco or alcohol.

The literature also reported that older Francophones in Ontario were less likely to visit a dentist (Picard & Hébert, 1997, 1999; Picard & Allaire, 2005). This study failed to find any significant differences between the two ethno-linguistic groups regarding oral health. This being said, the RAI-HC measures oral health with three criteria: problems chewing, dry mouth while eating, and problems brushing teeth/dentures. These three criteria might not be general and sensitive enough to encapsulate all aspects of oral health.

Bouchard *el al.* (2006) and Picard and Allaire (2005) made mention that older Franco-Ontarians are more likely to state that they feel limited due to chronic health problems. Analyses of the various disease diagnoses of this dataset found no significant

differences in chronic disease, with the exception of marginal differences in the cases of irregular pulse, glaucoma, HIV infection and respiratory illness. Anglophones were more likely to be diagnosed with an irregularly irregular pulse, HIV infection and respiratory illness. Considering the number of possible disease diagnoses, it is no surprise that very few were significant. These results indicate that very few differences exist between these two groups regarding disease diagnoses. This being said, the results did agree with the literature regarding a difference in perceived health.

It was also reported that older Franco-Ontarians take significantly more medication (McKellar, 1999; Bouchard el al., 2005) and Québec is the province with highest rate of inappropriate medication use (Hogan, Ebly & Fung, 1995). The comparison of the overall number of medications prescribed failed to show any significant differences between the two groups. Analysis of medical oversight frequencies did find significant differences; Francophones were about two times less likely to have a medical oversight of their medications. This means that about 15% of Francophones did not have a physician review their medication within the last 180 days in comparison to about 8% of Anglophones.

The analysis of the RAI-HC data resulted in a few unexpected findings, such as differences between these groups regarding vision and ocular health. The analysis found that Francophones were significantly more likely to report visual limitations, such as seeing halos or rings around lights, curtains over eyes or flashes of lights; decline in vision and greater overall visual impairment. This was also found in the Client Assessment Protocols (CAPs). Francophones triggered the vision CAP more frequently

than the Anglophones. Francophones also triggered the urinary incontinence and indwelling catheter CAP more frequently than English Ontarians.

Picard and Hébert (1999) mentioned that Franco-Ontarians over the age of 75 are more likely to require external help with their activities of daily living. MLM of the pain scale and the Activities of Daily Living index (ADL) failed to show that the language variables were significant, indicating that there are no significant differences between the two ethno-linguistic groups. Like the pain scale and the ADL index, modelling of the Changes in Health, End-stage disease and Signs and Symptoms (CHESS), failed to show that the language variables were significant, indicating that there are no significant differences between both groups when it comes to identifying clients who are at risk for serious decline, mortality and clinical instability.

Modeling of the instrumental Activities of Daily Living, found that both the language of the individual and the interaction between language at the individual and group level was significant. This was found before and after age, sex and education were taken into account. These findings indicate that Francophones are in general more likely to have greater difficulty with functioning routine activities around the home and in the community. The direction of the estimate within the interaction variable show that Francophones living within a CCAC, or community with a high concentration of Francophones are less likely to have low iADL scores, and thus are less likely to have problems with their routine activities.

Modeling of the Method for Assigning Priority Levels (MAPLe) showed that the language variables at neither the individual or the CCAC level was not significant. These findings indicate that there are no significant differences between both groups.

Conversely, the model was significant with the interaction between the two language variables. This was found before and after age, sex and education were taken into account. The direction of the estimate for the interaction variable indicates that Francophones living within a CCAC, or community, with a high concentration of Francophones are less likely to be at risk for adverse outcomes.

Most of the available literature examining the physical health of older Francophones relies on self reported information, and this literature indicates that this ethno-linguistic group tends to view themselves as less healthy than their Anglophone counterparts (Bouchard et al., 2006 ; Picard & Allaire, 2005). The RAI-HC data tends to support this literature. Significantly more Francophones (6.1%) report that they have poor health. The mention of self reported health is important, because the examination of the results of the statistical analysis indicate that there are little differences between Francophones and Anglophones when it comes to most spheres of physical health (life style, oral health, disease diagnoses, overall medication usage, pain and ADL). The only areas where Francophones tend to be at risk are vision patterns, medical oversight and iADL, yet Francophones are more likely to feel that they have poor health. Could this be due to factors that are not measures by the RAI-HC, or is there a cultural reason for this feeling of poor health?

Mental health

Very little literature exists regarding the psychological health of Francophones. The available literature reports that Francophones in minority settings are at greater risk of depression, psychological distress (Cairny & Krause, 2005), and psychiatric disorders (Steiner, Cairney & Veldhuizen, 2006). There is only one well-known study that

examines the psychological health of older Franco-Ontarians. This study reports that there are no significant differences between Francophones and Anglophones regarding self reported depression (Bouchard et al., 2006). The RAI-HC data indicates that the mental health of Francophones is a complex issue. Like Bouchard and colleagues (2006) the findings show that there are no differences with the use of antidepressant medication. This being said the RAI-HC data also indicate that Francophones in Ontario might indeed be at risk of psychological distress.

Some evidence for this is that Francophones consume significantly more antipsychotic/narcoleptic and hypnotic medications than Anglophones do. Conversely when examining the problem conditions regarding mental health, such as, delusions and hallucinations, no differences were found. However these two conditions are not encompassing measures of psychological distress.

Modeling of the Depression Rating Scale (DRS) found that both the language of the individual and the interaction between the language at individual and CCAC levels were significant. This was found both before and after age, sex and education were taken into account. These findings show that Francophones, in general, are more likely to suffer from depression. The direction of the estimate for the interaction variable indicates that Francophones living within a CCAC, or community with a high concentration of Francophones are less apt to depression.

In summary, analysis of the RAI-HC data, Francophones are indeed at risk for depression and increased usage of psychiatric medications. The analysis also revealed inconsistencies regarding the risk of depression and the usage of antidepressants. The undermedication of depression might explain the greater risk for depression among

Francophones, but this would need to be examined at a closer level. Cairney and Krausse (2006) state that "(...) because English is the dominant language spoken by most Canadians, non-English-speaking Canadians are at greater risk of marginalization and exclusion and, therefore, also at greater risk for depression and/or distress". Could this explain the differences between both ethno-linguistic groups in this analysis?

Marginalization can be characterized as a feeling of being overlooked, categorized and misrepresented (Lynam & Cowley, 2007). Unfortunately the RAI-HC does not have a measure of marginalization built in. The use of MLM might shed some light on this. The modeling of the physical and psychological health of Francophones is demonstrating distress mainly when the Francophones are residing in a community with a smaller concentration of others in this ethno-linguistic group. This could be an indication that Francophones are being marginalized in communities where they are more in the minority. One way that marginalization could be examined is by studying a person's social functioning and communication. The analysis of the social functioning aspect of the RAI-HC indicates that there is indeed some difference between Francophones and Anglophones. Both groups seem to be equally at ease with interacting with others, exhibiting changes in social activities and both feel equally lonely. Differences were found with regards to expression of anger and time spent alone. Both Anglophones and Francophones spend time alone during the day, however Francophones consistently spend greater time alone than their Anglophone counterparts.

Communication

Communication is an important part of cognition. The modeling of the Cognitive Performance Scale (CPS) failed to find effects for the language variables (at the individual and the CCAC levels) indicating that there are no significant differences between the two groups. This being said, the model was nearly significant (p=0.060) regarding the interaction between language at the individual and the group levels. When age, sex and education were taken into account, the model was significant (p=0.049). The direction of the estimate of the interaction shows that Francophones living within a CCAC, or community with a high concentration of Francophones are less likely to exhibit cognitive performance problems. Francophones also triggered the cognition CAP more frequently than Anglophones.

The analyses also gave other findings that proved to be very interesting. The modeling of expression (i.e. the client's ability to be understood), which is an item from the CPS, was found to be significant with both language at the CCAC level and the interaction between the language at the individual and group levels. This was found to be significant both before and after age, sex and education were taken into account. The interaction indicates that a client's ability to be understood varies with the proportion of Francophone clients in their regional CCAC. Not surprisingly, the direction of the estimate within the interaction variable indicates that Francophones living within a CCAC region, or community with a high concentration of Francophones, are more likely to be understood.

The modeling of the comprehension variable (i.e. a client's ability to understand) resulted in similar findings. Language at the individual and at the CCAC levels were

significant in this model, and also the interaction between them. They were found to be significant both before and after age, sex and education were taken into account. Again the direction of the estimate for the interaction variable indicates that Francophones living within a CCAC region, or community with a high concentration of Francophones were more likely to understand what is being instructed to them. This is likely because they are receiving services in their primary language.

The results of the modeling of the communication aspect of the RAI-HC proved invaluable on two fronts. Firstly, since marginalization is characterized as a feeling of being overlooked, categorized and misrepresented (Lynam & Cowley, 2007), these results illustrate the likelihood of marginalization of Francophones who are living in a minority setting. Consequently, Francophones are likely to be overlooked, categorized and misrepresented if communication difficulties contribute marginalization within the health care system. Examination of the interpreter needed variable, showed that 8 (4.1%) of Francophones were given the use of an interpreter, indicating that more interpreters may be needed to eliminate the aforementioned communication difficulties.

Secondly, the findings also question the content validity of the Cognitive Performance Scale (CPS). This scale is hierarchical and includes the language sensitive item 'Making self understood by others (expression)'. As mentioned the modeling of the expression item demonstrated that Francophones living in minority settings tend to be less understood by others. It stands to reason that Francophones may score lower on the CPS simply because of their language rather than cognitive impairment, with this effect more apparent in CCACs that have few Francophone clients. The use of such a language sensitive item in the measure of cognition should be

further examined. The analysis of the communication aspect of the RAI-HC proved to be quite important for a better understanding of the overall results of the statistical analysis and modeling of the RAI-HC data.

Conclusion

In summary, the overall comparison between older Francophones and Anglophones in the Ontario RAI-HC dataset provided a complicated picture. In accordance with the literature, the statistical analysis of this study indicated that Francophones do tend to be older and in a lower socio-economic status. It was also found that both groups live is similar conditions, and access health services in a comparable manner, except that in communities with high concentrations of Francophones, and there they tend to utilise more services. With regards to physical health the results are not as clear cut as the literature alluded to. No significant differences were found regarding, lifestyle choices like smoking and drinking, oral health, disease diagnoses, overall medication usage, pain, frailty and activities of daily living. The analysis did indicate, however, that there are significant differences concerning vision and medical oversights. Modeling did indicate differences in instrumental activities of daily living, and risk for adverse outcome (MAPLe). These differences were dependent of the interaction between the language of the individual and the community in which they reside. Similar results were found when examining the psychological health of the Francophones in this data set. Francophones consumed more antipsychotic/narcoleptic and hypnotic medications, and were more at risk for depression especially if living in a community with a small concentration of Francophones. This was also true in the case of problems with communication. The

analysis also raised marginalization as being a potential explanation as to why Francophones might be at greater risk of psychological distress, especially when considering the directionality of the modeling results. Francophones were at greater risk of distress when residing in communities where the concentration of Francophones was low. Analysis of this data set did reveal that Francophones did tend to spend more time alone and had difficulty with communication. The latter was found to be especially true for those living in regions with a low concentration of Francophones. This finding is one of great importance as it questions the validity of the RAI-HC as an assessment tool for Francophones living in a minority setting and thus being evaluated by someone who doesn't share a common language.

This research set out to compare the differences between older Francophones and Anglophones in the home care setting. This study is the first of its kind, to ever examine the differences between theses groups in Ontario. The analyses did indeed accomplish the goal of comparison and reviled that \there are differences between the majority linguistic groups and Francophones. Francophones were found to be at a disadvantage, however the picture is not quite clear or simple, and much more research needs to be done in the area.

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Appendix A
Tables from the literature review

Table A 1 Bivariate variables

Variable	RAI-HC code	Variable	RAI-HC code
Sex	BB1	Special treatments, therapies, programs	P2
Birth date (age)	BB2a	Alcohol consumption	7a-b
Language	BB5a	Smoking	7c
Translator needed	BB5b	Number of medications	Q1
Aboriginal origin	BB3	Medical oversight	Q3
Living situation	CC5	Vision	D
Marital status	BB4	Oral health	M
Reason for referral	CC2	Disease diagnosis	J
Education	BB6	Perceived Health	K8a
Economic trade-offs	P7	Psychiatric medications	Q2
Housing (Home environment)	01	Social functioning	F
Current hospital stays	CC4	Mental health problem conditions	K3fg
Preventative health measures	K1		

Table A 2 Client Assessment Protocols Areas

Functional Performance
Activity of Daily Living Rehabilitation Potential
Instrumental Activities of Daily Living
Health Promotion
Institutional Risk
Sensory Performance
Communication Disorders
Visual Function
Mental Health
Alcohol Dependence and Hazardous Drinking
Cognition
Behavior
Depression and Anxiety
Elder Abuse
Social Function
Continence
Bladder Management
Urinary Incontinence and Indwelling Catheter
Health Problems/Syndromes
Cardiorespiratory
Dehydration
Falls
Nutrition
Oral Health
Pain
Pressure Ulcers
Skin and Foot Conditions
Service Oversight
Adherence
Brittle Support System
Medication Management
Palliative Care
Preventive Health Measures
Psychotropic Drugs
Reduction in Formal Services
Environmental Assessment

Appendix B

Tables from the binary variable analysis

Table B 1 Living Situation

	Private home with no home care	Private home with home care	Board and care	Residential care	Other
Anglophones (n)	67.9% (3157)	25.9% (1202)	4.5% (208)	0.3% (12)	1.2% (58)
Francophones (n)	69.3% (124(	23.5% (42)	4.5% (8)	0.6% (1)	1.7% (3)

Table B 2 Marital Status

	Never married	Married	Widowed	Separated	Divorced	Other
Anglophones (n)	9.1% (431)	36.2% (1722)	45.2% (2150)	2.3% (111)	6.6% (312)	0.6% (29)
Francophones (n)	12.7% (25)	30.5% (60)	52.8 % (104)	1.0% (2)	2.5% (5)	0.5% (1)

Table B 3 Reason for referral

	Post hospital care	Community chronic care	Home placement screen	Eligibility for home care	Day care	Other
Anglophones (n)	30.8% (509)	10.9% (509)	2.1% (96)	52.3% (2443)	0.2% (11)	3.6% (167)
Francophones (n)	24.9% (45)	5.0% (9)	6.1% (11)	57.5% (104)	0.0% (0)	6.1% (11)

Table B 4 Education

	No School	8th grade/less	9-11 grade	High	Technical	Some college	Diploma	Graduate	Unknown
Anglophones (n)	1.5% (70)	26.9% (1274)	22.8% (1083)	23.4% (1110)	10.3% (488)	8.1% (382)	5.4% (258)	1.3% (63)	0.3% (13)
Francophones (n)	1.0% (2)	42.9% (84)	19.4% (38)	13.3% (26)	10.2% (20)	6.1% (12)	6.1% (12)	1% (2)	0.0% (0)

Table B 5 Housing hazards

	Anglophones (n)	Francophones (n)	χ^2 (1)	Significance
Lighting in evening	0.9% (42)	1.0% (2)	0.038	Not sig.
Flooring and carpeting	3.2% (153)	3.0% (6)	0.017	Not sig.
Bath/Toilet room	1.6% (77)	4.6% (6)	9.658	p=0.002
Kitchen	0.5% (25)	0.5% (1)	0.001	Not sig.
Heating / Cooling	0.7% (33)	0.5% (1)	0.096	Not sig.
Personal safety	0.9% (41)	1.5% (3)	0.940	Not sig.
Access to home	5.0% (236)	2.5% (5)	2.397	Not sig.
Access to rooms in home	3.7% (176)	2.7% (5)	0.724	Not sig.
None of above	88.2% (4199)	90.4% (178)	0.826	Not sig.

Table B 6 Time since last hospital stay

	Presently in Hospital	None in last 180 days	Within last week	Within 8 to 14 days	Within 15 to 30 days
Francophones (n)	64.2% (115)	12.8% (23)	5.6% (10)	5.0% (9)	12.3% (22)
Anglophones (n)	56.1% (2630)	16.7 % (784)	5.7% (268)	6.7% (313)	14.7% (690)

Table B 7 Preventative health measures

	Anglophones (n)	Francophones (n)	χ^2 (1)	Significance
Blood pressure measured	96.5% (4593)	95.4% (188)	0.568	Not sig.
Influenza vaccination	71.2% (3389)	71.6 (141)	0.015	Not sig.
Tests for blood in stool	15.5% (739)	17.8% (35)	0.726	Not sig.
Breast examination	25.4% (1208)	20.8% (41)	2.088	Not sig.
None of above	2.3% (108)	2.0% (4)	0.049	Not sig.

Table B 8 Chi-square results of special treatments/therapies

	DF	χ^2	Significance
Oxygen	2	0.326	Not. sig
Respirator	1	0.415	Not. sig
Respiratory treatment	3	3.395	Not. sig
Alcohol treatment	2	0.207	Not. sig
Blood transfusion	1	0.019	Not. sig
Chemotherapy	3	0.739	Not. sig
Dialysis	1	0.485	Not. sig
IV infusion –central	1	0.021	Not. sig
IV infusion – peripheral	3	0.412	Not. sig
Medication by injection	3	0.283	Not. sig
Ostomy care	2	2.687	Not. sig
Radiation	2	0.300	Not. sig
Tracheostomy care	1	0.498	Not. sig
Exercise therapy	3	0.681	Not. sig
Occupational therapy	3	2.526	Not. sig
Physical therapy	3	5.207	Not. sig
Day center	3	4.607	Not. sig
Day hospital	3	0.787	Not. sig
Physician or clinic visit	3	2.415	Not. sig
Respite care	3	2.854	Not. sig
Daily nurse monitoring	3	0.482	Not. sig
Nurse monitoring less than daily	3	3.617	Not. sig
Medic alert bracelet	3	1.957	Not. sig
Skin treatment	3	4.673	Not. sig
Special diet	3	4.030	Not. sig
None of above	2	7.200	p= 0.027

Table B 9 Oral health

	Anglophones (n)	Francophones (n)	χ^2 (1)	Significance
Problems chewing	6.3% (298)	4.6% (9)	0.900	Not sig.
Mouth is dry while eating	5.3% (254)	6.6% (13)	0.623	Not sig.
Problems with brushing	2.4% (112)	3.6% (7)	1.195	Not sig.
None of above	88.3% (4205)	86.2% (169)	0.783	Not sig.

Table B 10 Disease Diagnoses

		Anglophones (n)	Francophones (n)	χ^2 (2)	Sign.
Stroke	Present- Not subject to treatment	10.5% (499)	13.7% (27)	2.176	Not sig.
	Present-Subject to treatment	4.2% (201)	4.6% (9)		
Congestive Heart fail.	Present- Not subject to treatment	7.1% (338)	11.2% (22)	4.977	Not sig.
	Present-Subject to treatment	4.2% (201)	5.1% (10)		
Coronary artery dise.	Present- Not subject to treatment	12.6% (598)	9.1% (18)	2.055	Not sig.
	Present-Subject to treatment	6.7% (320)	7.1% (14)		
Hypertension	Present- Not subject to treatment	25.1% (1195)	31.5% (62)	5.132	Not sig.
	Present-Subject to treatment	12.1% (574)	8.6% (17)		
Irregular pulse	Present- Not subject to treatment	4.8% (228)	2.0% (4)	5.365	p=0.068
	Present-Subject to treatment	1.9% (89)	0.5% (1)		
Peripheral vascular dies.	Present- Not subject to treatment	4.8% (228)	3.6% (7)	1.423	Not sig.
	Present-Subject to treatment	2.5% (118)	1.5% (3)		
Alzheimer's	Present- Not subject to treatment	3.0% (143)	4.6% (9)	2.289	Not sig.
	Present-Subject to treatment	2.2% (103)	1.0% (2)		
Dementia	Present- Not subject to treatment	4.6% (218)	4.6% (9)	0.170	Not sig.
	Present-Subject to treatment	1.9% (92)	1.5% (3)		
Head trauma	Present- Not subject to treatment	0.9% (41)	0% (0)	2.473	Not sig.
	Present-Subject to treatment	0.4% (18)	0% (0)		
Hemiplegia	Present- Not subject to treatment	1.2% (56)	2.5% (5)	3.278	Not sig.
	Present-Subject to treatment	0.7% (31)	1.0% (2)		
Multiple Sclerosis	Present- Not subject to treatment	0.8% (40)	1.0% (2)	2.111	Not sig.

	Present-Subject to treatment	1.0% (49)	0% (0)		
Parkinsonism	Present- Not subject to treatment	1.8% (87)	2.2% (2)	2.254	Not sig.
	Present-Subject to treatment	1.6% (77)	0.5% (1)		
Arthritis	Present- Not subject to treatment	33.7% (1602)	36.5% (72)	4.836	Not sig.
	Present-Subject to treatment	10.4% (493)	5.6% (11)		
Hip fracture	Present- Not subject to treatment	2.8% (135)	4.1% (8)	1.125	Not sig.
	Present-Subject to treatment	1.3% (60)	1.5% (3)		
Other fracture	Present- Not subject to treatment	4.4% (207)	4.6% (9)	3.148	Not sig.
	Present-Subject to treatment	2.5% (118)	0.5% (1)		
Osteoporosis	Present- Not subject to treatment	9.6% (459)	7.1% (14)	4.739	Not sig.
	Present-Subject to treatment	3.2% (154)	1.0% (2)		
Cataract	Present- Not subject to treatment	13.8% (658)	17.3% (34)	2.168	Not sig.
	Present-Subject to treatment	1.6% (75)	2.0% (4)		
Glaucoma	Present- Not subject to treatment	4.2% (200)	7.6% (15)	5.511	p=0.064
	Present-Subject to treatment	0.8% (40)	0.5% (1)		
Psychiatric diagnoses	Present- Not subject to treatment	6.4% (305)	8.1% (16)	1.067	Not sig.
	Present-Subject to treatment	3.5% (171)	4.1% (8)		
HIV infection	Present- Not subject to treatment	0.1% (3)	0% (0)	13.680	p=0.001
	Present-Subject to treatment	0.1% (4)	1% (2)		
Pneumonia	Present- Not subject to treatment	1.6% (76)	1.5% (3)	0.050	Not sig.
	Present-Subject to treatment	1.2% (56)	1.0% (2)		
Tuberculosis	Present- Not subject to treatment	0.1% (6)	0.5% (1)	1.992	Not sig.
	Present-Subject to treatment	0.0% (1)	0.0% (0)		

Urinary tract infection	Present- Not subject to treatment	2.3% (110)	1.5% (3)	2.654	Not sig.
	Present-Subject to treatment	1.1% (50)	0.0% (0)		
Cancer	Present- Not subject to treatment	5.9% (282)	2.4% (7)	1.987	Not sig.
	Present-Subject to treatment	6.3% (300)	3.8% (12)		
Diabetes	Present- Not subject to treatment	12.4% (592)	10.2% (20)	2.730	Not sig.
	Present-Subject to treatment	7.4% (353)	2.8% (10)		
Repertory illness	Present- Not subject to treatment	9.4% (448)	5.5% (26)	5.341	p=0.069
	Present-Subject to treatment	5.8% (275)	3.0% (6)		
Renal Failure	Present- Not subject to treatment	1.6% (77)	2.0% (4)	1.689	Not sig.
	Present-Subject to treatment	1.6% (77)	0.5% (1)		
Thyroid disease	Present- Not subject to treatment	7.6% (360)	3.7% (14)	0.162	Not sig.
	Present-Subject to treatment	2.4% (113)	3.4% (4)		
None of above	Present- Not subject to treatment	5.6% (265)	2% (4)	4.795	Not sig.
	Present-Subject to treatment	0.1% (4)	0% (0)		

Table B 11 Social functioning

		Anglophones (n)	Francophones (n)	χ^2	df	Sig.
At ease interacting with others		92.4% (4401)	89.8% (177)	1.733	1	Not sig.
Openly express anger		19.2% (913)	27.9% (55)	9.201	1	p=0.002
Changes in Social Activities	Decline, not distressed	22.7% (1081)	23.4% (46)	0.406	2	Not sig.
	Decline, distressed	11.6% (553)	10.2% (20)			
Alone during day	Never	32.7% (1557)	31.0% (61)	13.297	3	p=0.004
	About 1 hr	10.4% (493)	13.7% (27)			
	Long time	33.3% (1585)	23.4% (46)			
	All the time	26.7% (1128)	32.0% (63)			
Feels lonely		21.4% (1017)	25.9% (51)	2.316	1	Not sig.

Table B 12 Client Assessment Protocols (CAPs)

	Anglophones (n)	Francophones (n)	χ^2 (1)	Sig.
ADL	30.7% (1462)	25.9% (51)	2.056	Not sig.
iADL	71.1% (3389)	72.1% (142)	0.082	Not sig.
Health Promotion	70.0% (3336)	72.1 % (142)	0.382	Not sig.
Institutional Risk	10.0% (478)	10.2% (20)	0.003	Not sig.
Communication Disorders	38.8% (1847)	43.7% (86)	1.898	Not sig.
Visual Function	32.0% (1526)	41.1% (81)	7.130	p=0.008
Alcohol Dependence and Hazardous Drinking	2.3% (110)	1.0% (2)	1.435	Not sig.
Cognition	32.9% (1576)	41.6% (82)	6.500	p=0.011
Behavior	6.6% (313)	7.6% (15)	0.334	Not sig.
Depression and Anxiety	21.4% (1020)	23.9% (47)	0.671	Not sig.
Elder Abuse	1.7% (80)	1.0% (2)	0.513	Not sig.
Social Function	28.2% (1345)	31.0% (61)	0.695	Not sig.
Continence	15.4% (736)	18.8% (37)	1.597	Not sig.
Urinary Incontinence and Indwelling Catheter	28.2% (1345)	36.0% (71)	5.655	p=0.017
Cardiorespiratory	31.9% (1520)	29.4% (58)	0.530	Not sig.
Dehydration	7.7% (369)	10.7% (21)	2.218	Not sig.
Falls	44.4% (2113)	36.5% (72)	4.676	p=0.031
Nutrition	23.6% (1125)	21.3% (42)	0.554	Not sig.
Oral Health	15.4% (736)	16.2% (32)	0.091	Not sig.
Pain	63.2% (3010)	67.0% (132)	1.191	Not sig.
Pressure Ulcers	18.6% (887)	14.2% (28)	2.441	Not sig.
Skin and Foot Conditions	24.7% (11179)	25.4% (50)	0.041	Not sig.
Adherence	8.7% (414)	7.1% (14)	0.602	Not sig.
Brittle Support System	27.5% (1309)	31.0% (61)	1.151	Not sig.
Medication Management	35.5% (1692)	39.2% (77)	1.051	Not sig.
Palliative Care	2.3% (111)	2.0% (4)	0.075	Not sig.
Preventive Health Measures	90.6% (4315)	89.3% (176)	0.336	Not sig.
Psychotropic Drugs	28.1% (1341)	29.9% (59)	0.303	Not sig.
Reduction in Formal Services	16.4% (781)	20.3% (40)	2.095	Not sig.
Environmental Assessment	6.3% (298)	6.6% (13)	0.038	Not sig.

Appendix C

Tables from the continuous variable analysis

Table C 1 Multilevel Modeling: Results of models (DV=Pain scale) with CCAC as a random effect

	Model	Estimate	SE	p	95% CI	
					Lower	Upper
Model 1	Intercept (CCAC)	1.3164	0.0457	< 0.001	1.209	1.030
Model 2	Intercept (CCAC)	1.2936	0.0569	< 0.001	1.560	1.428
	Language (individual)	-0.211	0.1455	Not Sig.	-0.496	0.074
	Language (CCAC)	0.1303	0.7074	Not Sig.	-1.570	1.831
	Interaction	1.3034	0.7573	Not Sig.	-0.182	2.789
Model 3	Intercept (CCAC)	0.7619	0.0910	< 0.001	1.133	1.652
	Language (individual)	-0.2115	0.1457	Not Sig.	-0.514	0.054
	Language (CCAC)	0.1805	0.7052	Not Sig.	-1.960	2.363
	Interaction	1.1550	0.7565	Not Sig.	-0.117	2.834
	Sex	0.0179	0.0101	Not Sig.	0.225	0.361
	Education	0.2715	0.0349	< 0.001	-0.012	0.028
	Age	0.7619	0.0910	< 0.001	-0.011	-0.006

Table C 2 Multilevel Modeling: Results of models (DV=Activities of Daily Living) with CCAC as a random effect

	Model	Estimate	SE	p	95% CI	
					Lower	Upper
Model 1	Intercept (CCAC)	1.5423	0.0293	< 0.001	0.488	0.825
Model 2	Intercept (CCAC)	0.6384	0.0955	< 0.001	0.290	0.848
	Language (individual)	0.0137	0.1545	Not Sig.	-0.289	0.317
	Language (CCAC)	0.0356	1.2126	Not Sig.	-2.650	2.719
	Interaction	-1.3737	0.8045	Not Sig.	-2.951	0.203
Model 3	Intercept (CCAC)	1.4895	0.1512	< 0.001	1.188	1.791
	Language (individual)	0.0012	0.1538	Not Sig.	-0.300	0.303
	Language (CCAC)	-0.0481	1.2353	Not Sig.	-2.788	2.691
	Interaction	-1.0930	0.7997	Not Sig.	-2.661	0.475
	Sex	-0.0160	0.0108	Not Sig.	-0.037	0.005
	Education	-0.2797	0.0369	< 0.001	-0.052	-0.207
	Age	-0.0042	0.0012	< 0.001	-0.007	-0.002

Table C 3 Multilevel Modeling: Results of models (DV=Instrumental Activities of Daily Living) with CCAC as a random effect

	Model	Estimate	SE	p	95% CI	
					Lower	Upper
Model 1	Intercept (CCAC)	3.4085	0.1348	< 0.001	3.113	3.705
Model 2	Intercept (CCAC)	3.2896	0.1537	< 0.001	2.949	3.630
	Language (individual)	0.5346	0.2237	=0.017	0.096	0.973
	Language (CCAC)	1.8772	1.9593	Not Sig.	-2.500	6.254
	Interaction	-4.6574	1.1655	< 0.001	-6.942	-2.373
Model 3	Intercept (CCAC)	3.3625	0.2204	< 0.001	2.922	3.803
	Language (individual)	0.5017	0.2232	=0.025	0.064	0.939
	Language (CCAC)	1.8124	1.8132	Not Sig.	-2.238	5.863
	Interaction	-4.4543	1.1606	< 0.001	-6.730	-2.179
	Sex	-0.0140	0.0156	Not Sig.	-0.045	0.017
	Education	-0.4441	0.0536	< 0.001	-0.549	-0.339
	Age	0.0100	0.0017	< 0.001	0.007	0.013

Table C 4 Multilevel Modeling: Results of models (DV=Service Utilization in minutes) with CCAC as a random effect

	Model	Estimate	SE	p	95% CI	
					Lower	Upper
Model 1	Intercept (CCAC)	5910.0169	576.5850	< 0.001	4654.353	7165.681
Model 2	Intercept (CCAC)	5682.2068	723.9738	< 0.001	4096.411	7268.003
	Language (individual)	598.9704	1015.4623	Not Sig	-1391.796	2589.737
	Language (CCAC)	6370.2632	9237.5741	Not Sig	-14021.109	26761.636
	Interaction	-11133.0571	5245.3632	=0.034	-21416.346	-849.769
Model 3	Intercept (CCAC)	4144.5935	1048.6413	< 0.001	2039.201	6249.986
	Language (individual)	785.1623	1020.8592	Not Sig	-1216.187	2786.512
	Language (CCAC)	5872.2786	9244.3514	Not Sig	-14510.958	26255.515
	Interaction	-11459.7775	5261.8211	=0.029	-21775.343	-1144.212
	Sex	187.5720	70.5955	=0.008	49.173	325.971
	Education	-111.1805	242.2310	Not Sig	-586.064	363.703
	Age	14.0817	7.8008	Not Sig	-1,212	29.375

Table C 5 Multilevel Modeling: Results of models (DV= Method for Assigning Priority Levels) with CCAC as a random effect

	Model	Estimate	SE	p	95% CI	
					Lower	Upper
Model 1	Intercept (CCAC)	2.6387	0.0689	< 0.001	2.490	2.787
Model 2	Intercept (CCAC)	2.5496	0.0777	< 0.001	2.381	2.718
	Language (individual)	0.2132	0.1588	Not Sig.	-0.098	0.525
	Language (CCAC)	1.3367	0.9768	Not Sig.	-0.803	3.477
	Interaction	-2.5848	0.8272	=0.002	-4.206	-0.963
Model 3	Intercept (CCAC)	2.8192	0.1430	< 0.001	2.537	3.102
	Language (individual)	0.1851	0.1585	Not Sig.	-0.126	0.496
	Language (CCAC)	1.2938	0.9888	Not Sig.	-0.871	3.458
	Interaction	-2.4295	0.8238	=0.003	-4.044	-0.815
	Sex	-0.3057	0.0380	< 0.001	-0.380	-0.231
	Education	-0.0315	0.0111	=0.004	-0.053	-0.010
	Age	0.0050	0.0012	< 0.001	0.003	0.007

Table C 6 Multilevel Modeling: Results of models (DV= Changes in Health, End-stage disease and Signs and Symptoms) with CCAC as a random effect

	Model	Estimate	SE	p	95% CI	
					Lower	Upper
Model 1	Intercept (CCAC)	1.1227	0.0589	< 0.001	0.990	1.256
Model 2	Intercept (CCAC)	1.1163	0.0706	< 0.001	0.956	1.277
	Language (individual)	0.0798	0.1391	Not Sig.	-0.193	0.353
	Language (CCAC)	0.0250	0.8888	Not Sig.	-2.026	2.076
	Interaction	-0.6736	0.7247	Not Sig.	-2.094	0.747
Model 3	Intercept (CCAC)	1.0480	0.1256	< 0.001	0.799	1.297
	Language (individual)	0.0842	0.1399	Not Sig.	-0.190	0.359
	Language (CCAC)	-0.0350	0.8533	Not Sig.	-2.005	1.935
	Interaction	-0.6181	0.7273	Not Sig.	-2.044	0.808
	Sex	-0.0794	0.0336	=0.018	-0.145	-0.013
	Education	0.0124	0.0098	Not Sig.	-0.007	0.032
	Age	0.0021	0.0011	=0.049	0.001	0.004

Table C 7 Multilevel Modeling: Results of models (DV=Cognitive Performance Scale) with CCAC as a random effect

	Model	Estimate	SE	p	95% CI	
					Lower	Upper
Model 1	Intercept (CCAC)	0.7567	0.0469	< 0.001	0.655	0.858
Model 2	Intercept (CCAC)	0.7058	0.0522	< 0.001	0.592	0.820
	Language (individual)	0.2392	0.1592	Not Sig.	-0.073	0.551
	Language (CCAC)	1.1879	0.6438	Not Sig.	-0.237	2.613
	Interaction	-1.5611	0.8287	=0.060	-3.186	0.064
Model 3	Intercept (CCAC)	0.8031	0.1337	< 0.001	0.540	1.066
	Language (individual)	0.2575	0.1582	Not Sig.	-0.053	0.568
	Language (CCAC)	1.1090	0.7461	Not Sig.	-0.584	2.802
	Interaction	-1.6191	0.8217	=0.049	-3.230	-0.008
	Sex	-0.2951	0.0380	< 0.001	-0.370	-0.221
	Education	-0.0306	0.0111	=0.006	-0.052	-0.009
	Age	0.0070	0.0012	< 0.001	0.005	0.009

Table C 8 Multilevel Modeling: Results of models (DV=Depression Rating Scale) with CCAC as a random effect

	Model	Estimate	SE	p	95% CI	
					Lower	Upper
Model 1	Intercept (CCAC)	1.1241	0.1570	< 0.001	0.778	1.471
Model 2	Intercept (CCAC)	1.1158	0.1943	< 0.001	0.684	1.547
	Language (individual)	0.4723	0.2328	=0.043	0.016	0.929
	Language (CCAC)	0.3377	2.4890	Not Sig.	-5.229	5.904
	Interaction	-3.4380	1.2093	=0.004	-5.809	-1.067
Model 3	Intercept (CCAC)	1.7411	0.2449	< 0.001	1.247	2.236
	Language (individual)	0.4603	0.2313	=0.047	0.007	0.914
	Language (CCAC)	0.1693	2.1964	Not Sig.	-4.763	5.102
	Interaction	-3.0404	1.2026	=0.011	-5.398	-0.683
	Sex	0.0910	0.0556	Not Sig.	-0.018	0.200
	Education	0.0204	0.0162	Not Sig.	-0.011	0.052
	Age	-0.0116	0.0018	< 0.001	-0.015	-0.008

Table C 9 Multilevel Modeling: Results of models (DV= Expression) with CCAC as a random effect

	Model	Estimate	SE	p	95% CI Lower	95% CI Upper
Model 1	Intercept (CCAC)	0.2559	0.0238	< 0.001	0.205	0.307
Model 2	Intercept (CCAC)	0.1934	0.0192	< 0.001	0.151	0.236
	Language (individual)	0.1511	0.0818	Not Sig.	-0.009	0.311
	Language (CCAC)	0.9115	0.2341	=0.003	0.394	1.429
	Interaction	-1.4671	0.4253	=0.001	-2.301	-0.633
Model 3	Intercept (CCAC)	0.5086	0.0650	< 0.001	0.381	0.636
	Language (individual)	0.1476	0.0817	Not Sig.	-0.012	0.308
	Language (CCAC)	0.8656	0.2431	=0.005	0.330	1.401
	Interaction	-1.3639	0.4237	=0.001	-2.195	-0.533
	Sex	-0.0127	0.0057	=0.026	-0.024	-0.002
	Education	-0.1453	0.0196	< 0.001	-0.184	-0.107
	Age	-0.0003	0.0006	Not Sig.	-0.002	0.001

Table C 10 Multilevel Modeling: Results of models (DV= Comprehension) with CCAC as a random effect

	Model	Estimate	SE	p	95% CI Lower	95% CI Upper
Model 1	Intercept (CCAC)	0.2850	0.0242	< 0.001	0.233	0.337
Model 2	Intercept (CCAC)	0.2060	0.0159	< 0.001	0.170	0.242
	Language (individual)	0.2558	0.0832	=0.002	0.093	0.419
	Language (CCAC)	0.9918	0.1958	=0.000	0.559	1.424
	Interaction	-1.4121	0.4322	=0.001	-2.260	-0.565
Model 3	Intercept (CCAC)	0.2269	0.0653	=0.001	0.099	0.355
	Language (individual)	0.2604	0.0829	=0.002	0.098	0.423
	Language (CCAC)	0.9949	0.2199	=0.001	0.510	1.480
	Interaction	-1.4457	0.4299	=0.001	-2.288	-0.603
	Sex	-0.0149	0.0058	=0.010	-0.026	-0.004
	Education	-0.1467	0.0200	< 0.001	-0.186	-0.108
	Age	0.0038	0.0006	< 0.001	0.003	0.005