



To drive or not to drive: Driving cessation amongst older adults in rural and small towns in Canada

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ABSTRACT

Driving cessation, often due to health-related changes, can be a particularly challenging and troublesome transition in older adulthood that can lead to social isolation. While policy makers have long recognized the potential impact of an aging population on Canada's health care and national pension plans, the transportation needs of older adults have received relatively less attention. For older adults residing in small towns and rural areas who rely, more often than not, on the personal automobile there is usually limited or no access to public transportation. For policy makers to respond effectively to the transportation needs of an aging population, particularly those living in rural areas, the first step is to understand the travel behaviours of older adults living in such areas, particularly as they approach the transition when they will cease to drive. This paper reports on qualitative research exploring the driving-related challenges and needs faced by older adults in small towns and rural areas near Hamilton, Ontario, Canada. Results revealed four major themes: lack of transportation options in rural areas, changes in driving behaviours, the lack of planning for driving cessation, and the social isolation that comes from the loss (or potential loss) of one's driver's license.

1. Introduction

In most car dependent societies, personal mobility is often synonymous with automobility, or the ability to drive. Indeed, driving remains the most common and preferred mode of transportation amongst adults within North America, including older people (Kim and Ulfarsson, 2004; Páez et al., 2007; Scott et al., 2009; Vrkljan et al., 2018). For many, driving enables the completion of daily tasks such as shopping or commuting and is also strongly associated with increased independence, community engagement and social participation (Dahan-Oliel et al., 2010). Although aging is associated with more limited driving, self-regulation of driving activities (Smith et al., 2016), and driving cessation due to poor health or other reasons leading to unmet transport needs (i.e., Hjorthol, 2012), older adults remain highly dependent on their personal automobile (Kim and Ulfarsson, 2004; Páez et al., 2007), and are much less likely to use public transit, at least in the Canadian context (Collia et al., 2003; Hjorthol et al., 2010; Newbold et al., 2005; Rosenbloom, 2001; Turcotte, 2012) or has been found to decrease (Scott et al., 2009). If public transit is available, older adults are typically less likely to use public transit services compared to younger generations (Newbold and Scott, 2018).

The growth of the number and proportion of older persons living in rural areas western countries, including Canada, has multiple implications both for communities and their residents. For older residents living in rural areas and small towns where transportation options are

limited, the personal car is vital (Shergold et al., 2012; Zeitler and Buys, 2015). In the Canadian context, older adults in rural areas are often more reliant on the personal automobile for transportation given the lack of alternate transportation options, dispersed settlement patterns, poor infrastructure and larger distances (Pucher and Renee, 2005). Unfortunately, increasing age can also mean declining health and related limitations that can negatively impact the ability to drive or lead to driving cessation. As such, limited transportation options and transportation barriers may result in social isolation and loneliness along with decreased physical health and emotional well-being (Asse et al., 2014; Chihuri et al., 2016; Edwards et al., 2009; Freeman et al., 2006; Hwang and Hong, 2018; Liddle et al., 2014; Metz, 2000; Matz-Costa et al., 2014; Spinney et al., 2009; van den Berg et al., 2016; Litwin and Levinson, 2018; Musselwhite and Shergold, 2013; Zeitler and Buys, 2015). This paper reports on the qualitative findings concerning the transportation needs of older adults who reside in rural areas and small towns, along with related questions as to whether they had plans for driving cessation and the potential or known challenges associated with loss of licensure.

2. Background

Like other Western countries, the Canadian population is aging, with the 2016 census reporting that nearly 17% of the country's population was aged 65 years or over. This demographic is expected to

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grow to over 25% of the nation's total population by 2036. While the majority of Canada's population live in urban areas, approximately 17% of Canadians reside in rural areas or small towns (Statistics Canada, 2016), with a growing number of older adults residing in small towns and rural areas. In fact, Canada's rural population is older and aging faster than their urban counterparts (Dandy and Bollman, 2008). At the same time, the Canadian context is somewhat unique with regard to its rural landscape, distances between major urban centres, limited use of public transit, and the lack of a strong public transit network connecting rural areas and small towns.

For residents of Canada's rural areas and small towns, driving allows individuals to accomplish activities of daily living outside of the home, along with the ability to socialize and engage with members of their community. The current literature reveals that access to mobility tools, and specifically the ability to drive, is linked to greater access to health care, shopping, social opportunities, and other destinations (i.e., Zeitler and Buys, 2015; Graham et al., 2018). However, as noted by Musselwhite and Haddad (2010), the benefits of mobility extend beyond access and include greater well-being and maintenance of personal independence, control and inclusion.

As populations age, a larger number of older adults will restrict their own driving habits or will cease to drive completely due to health or other concerns (Kim, 2011; Waldorf, 2001; Scott, 2012), with the loss of a driver's license representing a potentially life changing transition. Indeed, multiple research studies have highlighted how diminished driving ability or the loss of a driver's license is linked to reduced out-of-home activity levels (Brown et al., 2017; Bryanton et al., 2010; Buys and Carpenter, 2002; Curl et al., 2014; Davey, 2007; Dickerson et al., 2017; Marottoli et al., 2000; Sacker et al., 2017; Turcotte, 2012), increased social isolation and loneliness (i.e., Litwin and Levinson, 2018; Musselwhite and Shergold, 2013; Shergold et al., 2012; Zeitler and Buys, 2015; Shergold and Parkhurst, 2012), perceived loss of independence and quality of life (Hwang and Hong, 2018; Marottoli et al., 2000), poorer health status (Edwards et al., 2009), greater rates of depression (Fonda et al., 2001), and decreased ability to care for oneself and access to health care (i.e., Arcury et al., 2006; Mattson, 2011). Driving cessation is also associated with reduced affective (i.e., need for independence, control) and aesthetic qualities (need to travel) of mobility that a personal automobile can provide for those who have access (Musselwhite and Haddad, 2010; Musselwhite, 2011).

Given an auto-centric culture and the dependence on the personal automobile in rural areas, older adults residing in these areas may be more likely to retain their driver's license. Indeed, a difference in licensure rates between urban and rural areas are observed, with 93% of older Canadians living in rural areas and small towns holding a valid driver's license, compared to 85% in urban areas based on data from 2010 (Spinney et al., 2020). Moreover, urban drivers may be more likely to give up their license as compared to their counterparts in rural areas and small towns. For example, 88% of rural residents aged 80 years and older are drivers, compared to fewer than 70% of older adults living in urban areas (Spinney et al., 2020). Consequently, the limited transportation alternatives may prompt (or force) individuals who live in rural areas to retain their license longer compared to those living in urban areas (Siren and Haustein, 2015; Turcotte, 2012), a hypothesis that assumes that driving cessation can be planned and occurs over a period of time with individuals slowly reducing the number, distance, and duration of trips (Rosenbloom, 2001).

While the transition from driving to driving cessation may be gradual and occur over a period of time as individuals self-regulate their driving behaviour (Musselwhite and Shergold, 2013; Siren and Haustein, 2015), this transition may also be abrupt, unexpected and unanticipated (Adler, 2010; Musselwhite and Shergold, 2013). Consequently, the loss of the ability to drive can lead to a sudden change in the ability to complete activities of daily living and engage or participate in the larger community, with poorer outcomes for those individuals (Musselwhite, 2011). In this way, it is likely the case that not

all older individuals give up driving in the same way (i.e., Musselwhite and Shergold, 2013) and not all actively plan for reduced driving and/or driving cessation. That is, some older individuals assume they will be able to drive safely and without restriction indefinitely, or that driving cessation is, in the worst case, something that is still in the relatively distant future given their current health and abilities. The notion of if and when older people begin to plan for driving cessation, particularly those who live in rural areas, is not yet clear.

The negative impacts of reduced driving and driving cessation amongst older people are likely magnified in rural areas and small towns. For individuals who reside in these geographic areas, the limited number of transportation options and the reliance on the personal automobile challenges their mobility and ultimately their ability to participate and be included within the larger society. This is particularly the case when compared to residents of urban areas where alternate transportation options are more readily available. Consequently, it is more likely that older adults are less able to care for their social and health needs themselves; a problem that is further exacerbated by more limited health and social services in rural areas (Schuurman et al., 2010). As a result, driving cessation is more likely to lead to unmet mobility needs for rural residents (Dickerson et al., 2017; Haustein and Siren, 2014).

A critical question is therefore how or whether older Canadians living in rural areas and small towns plan ahead for driving cessation. First, we examined the transportation needs of older adults living in these areas, particularly the importance of driving in their daily life. We then explore the notion of planning for driving cessation and the anticipated and real impacts, including social isolation and its relationship to loss of a driver's license.

3. Methods

Our study is set amongst the small towns and rural areas surrounding the city of Hamilton, Ontario. With a 2016 population slightly greater than 530,000, Hamilton is located in Southern Ontario approximately 60 km west of Toronto. The city itself is served by a public transit system (Hamilton Street Railway, or HSR), as well as the GO Transit system that offers both bus and rail inter-regional transportation options. Similar to other studies that explored driving cessation amongst older adults in a variety of geographical settings (i.e., Musselwhite and Haddad, 2010), this study is based on qualitative research examining the driving and transportation experiences of older adults living in rural areas and small towns around Hamilton. Two of the communities from which individuals were recruited are defined by Statistics Canada (2017) as 'small population centres', with populations of 1869 (14.7% aged 65+) and 5489 (16.6% aged 65+), respectively. The other two communities from which participants were recruited had populations less than 1000, and are defined by Statistics Canada as 'rural'. All communities were at least 20 km from Hamilton. Some towns previously had public transit service in the form of buses and trains, but lost these services over time as the personal car dominated travel choices and as cutbacks to public transit were made by service providers and funding agencies. Now, all four communities lacked public transportation options.

Interviews with older adults explored the nuances of driving behaviour. A total of 17 semi-structured interviews were completed, with some people interviewed alone and others as couples, bringing the total number of participants to 23 (Table 1). Recruitment continued until thematic saturation was reached. While we had not planned on interviewing couples, the methodology was adapted along the way as many participants wished to be interviewed together. While concerns with respect to conducting joint interviews between partners have been raised in the literature (see Klink, 2018), our approach was to ask open-ended questions where couples could share their joint stories and experiences in overcoming shared issues or challenges they experienced with performing driving-related tasks, such as navigating unfamiliar

Table 1
Characteristics of participants.

Participant	Gender	Age	Driving status	Health
1	Female	86	Non-driver	Good
2	Female	83	Driver	Very good
3	Female	74	Driver	Excellent
4A	Female	72	Driver	Excellent
4B	Male	74	Driver	Very good
5	Female	70	Driver	Excellent
6A	Female	80	Driver	Excellent
6B	Male	83	Non-driver	Fair
7	Female	75	Driver	Good
8	Female	77	Driver	Excellent
9A	Female	71	Driver	Very good
9B	Male	74	Driver	Good
10	Female	77	Driver	Excellent
11A	Female	70	Driver	Very good
11B	Male	68	Driver	Good
12A	Female	75	Driver	Very good
12B	Male	78	Driver	Good
13	Female	76	Driver	Excellent
14	Female	88	Non-driver	Very good
15	Female	81	Non-driver	Very good
16	Female	68	Driver	Very good
17A	Female	72	Driver	Good
17B	Male	73	Driver	Good

areas. Questions were also framed to provide participants with the opportunity to share their individual experience with driving and their driving futures. All participants were aged 65+ and lived in rural areas. Their average age of the sample was 76 years, were mostly females ($n = 17$) and were current drivers ($n = 19$). Table 1 provides the basic description of the sample.

Recruitment for the study took place in the first 6 months of 2018. Several strategies were utilized to recruit people with different driving status' (driver/non-driver) and from the various towns and rural areas surrounding the city of Hamilton. Recruitment notices were posted at the recreation center at McMaster University, on public noticeboards and through announcements at book club meetings at rural Hamilton Public Library (HPL) branches and several grocery stores in the rural areas. Participants were also recruited through email distribution lists for older adults, and snowball sampling techniques were used. Snowballing was by far the most successful recruitment method as many of the participants were active in their communities and were able to connect the researchers with other participants interested in the study. Respondents were screened for age (65+) and rural location.

Interview guides included a variety of questions that explored transportation modes and habits, 'typical' daily transportation needs, as well as questions around health, including chronic diseases and mental health. Two separate interview guides were prepared, with one for current drivers, and one for individuals who no longer drove. In the latter case, respondents were asked about the reasons for driving cessation, their current transportation options, and whether they had planned for cessation. In the former, respondents were asked about their current driving behaviours and whether they were planning for the day that they could no longer drive. Interviews lasted between 30 and 90 min and were audio recorded with the consent of the participants. Written notes were also used as a backup to the recording and as a way to document any relevant information that could not be obtained from the audio recordings, such as any emotions and/or non-verbal gestures.

Interviews were coded and analysed using the six steps to conducting thematic analysis by Braun and Clarke (2006), including data familiarization through transcription and reading (step 1), initial code generation (step 2), theme development through code combinations (step 3), theme review (step 4), naming and defining themes (step 5), and report generation (step 6). Initial coding was done by the lead author and then reviewed and compared with other researchers on the

team. The codes were then arranged into themes based on patterns identified during the analysis and the overall research question. Analysis continued during the write up through the selection of examples and quotes that addressed the research question and considered findings from the literature. The main themes found during the analysis included the lack of transportation options, changes in driving behaviours, planning for their driving future, and social and emotional isolation. Focusing on the decisions and impacts of driving options in rural areas, each theme, alongside direct quotes, is described in the section that follows. The study received ethics clearance from the author's home institution.

4. Results

Of the 23 participants, four no longer drove. The majority of participants who did drive had some form of driving limitation or self-regulation such as avoiding limited access highways, driving in snowy and poor weather conditions, or driving at night. The four themes are explored below.

4.1. "Everything here revolves around driving": lack of transportation options in rural areas

To truly understand how participants in rural areas and small towns get around, they were asked about their main modes of transportation and other transportation options available to them. Participants confirmed that the personal car was the primary mean of transportation and emphasized the importance of having access to a personal automobile for their out of home activities:

Everything here revolves around driving, really... there is no other option. Out here we have nothing (Participant 9B, Male driver aged 74).

Driving is crucial if you live in a small community that is outside the city. (Participant 9A, Female driver aged 71).

Participants highlighted that living in rural areas and small towns meant they were completely dependent on the personal automobile for their daily transportation needs. Daily transportation needs included, but were not limited to, grocery shopping, doctor's appointments, church, volunteering, and socializing. Participants expressed a desire to bike and walk to places, but they were often not able to and therefore had to rely on their personal automobile. The reasons older people offered for not being able to bike or walk to places included physical limitations, lack of sidewalks, lack of a walkable built environment, and distance. For example, the planning and infrastructure in the small communities made it difficult to walk:

They moved the post office from being close over to the plaza, but they do it as the crow flies. The only thing is, you got a stream in between so you can't walk. (Participant 9B, male driver aged 74).

Beyond the personal automobile, older people also raised concerns about how other available transportation options were limited or non-existent. Active transportation modes, such as walking or biking, were not a plausible alternatives given concerns with their personal safety (high speed roads and often no sidewalks), distances to destinations, or personal health issues. For example, bikes were seen as recreation tools as opposed to a transportation option despite multiple participants volunteering that they owned a bike that was rarely used. This is illustrated by a conversation with participant 2 (Participant 2, female driver aged 83):

I: okay, so the bike is more recreational?

P: that's right. Yeah, there is only one way to get anywhere where I live and that is by car.

Participants also noted a lack of public transportation alternatives that provided regular, scheduled service. Consequently, for many

participants there were no other options than their car:

There is no bus here. Nothing. If you live here, you have to have a car, you have to be able to drive. (Participant 10, female driver aged 77).

While some participants had used taxis, they noted the high cost for using this form of transportation, which meant that it was not affordable. For most participants, taxis and ride share applications (i.e. Uber, Lyft), were not options in their areas, which forced them to be even more dependent on their private vehicles. Amongst non-driving participants, a few were able to use Hamilton's DARTS service (Disabled and Aged Regional Transportation System) to get to appointments. Many participants were not aware of this service, had limited knowledge of how it worked, or found that they were required to pre-plan out-of-home trips in advance, all of which limited its use:

I just got, it's called DARTS permission last week. I haven't used it yet. I have no idea how it works. I don't know how well it will work for me. I have just heard about it. (Participant 14, female non-driver aged 88).

Most participants, however, either did not have access to DARTS or similar services because of where they lived relative to the service area, or had only passing familiarity with the service. Those who had limited knowledge of accessible transit had negative perceptions when the option was explained to them, and the few who had used the service found many problems, given its limitation with providing transportation to nearby communities, as their location fell outside the jurisdiction for which the service was provided.

A friend of mine who wasn't senior but was disabled, she worked with DARTS but she was very frustrated because it took a long time, you had to book ahead and all that kind of stuff (Participant 11A, female driver aged 70).

For the majority of participants, however, DARTS was not an option as they resided outside of its service area, and no similar services were available.

Participants also expressed frustration around losing services in their closest towns, reinforcing their reliance on their cars. For example, they noted the loss of a local health laboratory requiring participants to drive to another town to do their bloodwork. Other services that had left included a post office and bank, reflecting cutbacks in funding, political priorities and business rationalization:

And another thing too is our bank! They are closing it and they are moving it to [community], which is very annoying because if you go to the chiropractor, the medical centre, and then you go to the library, they are all together. The bank was there too. (Participant 1, female non-driver aged 86).

4.2. "I can't drive at night": changes in driving behaviour as one ages

Although a few of our participants continued to work part time (beyond the usual, but not enforced, retirement age of 65), the majority of participants were fully retired. Most found that they were less likely to drive in poor weather, such as heavy rain and snow storms because they simply did not have to drive compared to individuals who were forced to drive in poor weather conditions to get to work. A significant change in driving behaviour was also observed around being more cautious and avoiding certain situations, reflecting the stress of driving on busy highways:

I am very much more cautious than I used to be. It scares me if I think I haven't looked properly. (Participant 10, female driver aged 77).

Participants were asked about any changes they had noticed in their driving behaviour or driving patterns, and many of the participants noted that they had changed their driving behaviour as they aged. For some participants, changes in driving behaviour were conscious decisions and for others they were more subconscious, and noted by their

partner, children, or others. For example:

Our daughter pointed out to us, last night, that we are changing our driving habits in subtle ways and I said 'Oh, we get in the car and go'. [Daughter] 'But you don't like to drive at night as much as you used to' and I hadn't really thought about that, but it is true. We tend to not go so far at night. (Participant 9A, female driver aged 71).

Many participants had also changed their night driving behaviour. They either completely avoided night driving or tried to limit it as they either had a hard time seeing at night or felt that their night driving skills were no longer 100%. Participants explained they particularly avoided driving at night in the winter as it was especially dark and harder to see. Not being able to drive at night ended up also having consequences for social participation:

Well, I can't drive at night. So, I miss out on anything that goes on in the evening unless I can get somebody to come pick me up. (Participant 3, female driver aged 74).

4.3. "It is going to be a disaster": planning for their driving future

Most of our participants continued to drive, although four were no longer driving. Of these four, they had lost their licenses primarily due to health concerns, and one had lost their license due to a Ministry of Transportation decision at the time of renewal. Moreover, it appeared that non-drivers had also assumed that they would be able to drive in the future. But do participants plan for the day when they can no longer drive? Even amongst those who had lost their license, there did not appear to be long-term planning for that eventual day:

I did not project that the day would come, no question. Most people anyways don't think about aging until one day you wake up and realize hey, I haven't got a car. (Participant 14, female non-driver aged 88).

Another participant added:

I hadn't really thought about it, it took me completely by surprise. (Participant 15, female non-driver aged 81).

Although these participants could no longer drive, they had chosen not to move. Two lived with a spouse who could drive them. The other two, who were widowed and lived alone, described being completely dependent on family members and friends for their transportation needs but still had no plans to move. Unfortunately, other coping strategies, beyond depending on others for transportation in rural areas, were not explored with participants in this study.

When we asked participants who were still driving about whether they had made any plans for when they could no longer drive or what they thought life would look like without being able to drive, very few indicated that they had given it much thought or that they had made any plans. More commonly, driving cessation did not appear to be an event that participants actively planned for or, at a minimum, did not want to admit and discuss during the interview. Despite not actively planning for driving cessation, some participants realized the importance of planning for the day when they could no longer drive:

It is going to be a disaster if it is left until the moment when you suddenly can't drive. I think you have to plan ahead. (Participant 4A, female driver aged 72).

For many, the lack of planning for the day when they were no longer able to drive was rooted in their fear of what would happen and the changes it might bring about:

I certainly don't want to move. I have no intention of moving. If I wasn't able to drive, I don't know what I would do, I don't know. (Participant 7, female driver aged 75).

We don't want to plan ahead too soon. I don't want to move, that is the problem. (Participant 4B, male driver aged 74).

Conversely, the loss of the ability to drive would mean that they would likely have to move given the lack of transportation alternatives. The only way that someone could avoid moving was if they lived with children that could take care of them and drive them to appointments and activities. However, this was often not a sustainable solution. For participants who lived in more rural areas, moving to the nearest local town was also not an option because of the dispersed downtowns and/or lack of true business areas and services:

The funny thing is, even in [their current location], you can't live in [community 1], you can't live in [community 2], you can't live in [community 3] [other neighbouring communities] without a car. (Participant 4A, female driver aged 72).

Moving was not predicated on the usual factors such as the need to downsize, with many feeling they would be forced to move to larger urban areas with access to alternate transportation and options. Moving was therefore costly both financially as well as socially, as shared ties to their current communities and existing social networks would be severed. A participant described dealing with the thought of moving, especially the idea of moving into a retirement home:

That problem [transportation] is solved, by the way, for all those people who go into a retirement home because they just don't go anywhere. Their cars are taken away from them, they don't go anywhere, even though they might be in a retirement home that is smack in the center of the city, they don't go out. Some people do but my friends don't, they just become isolated... I'm not going anywhere [moving], so that is what I have to think about [transportation]. (Participant 2, female driver aged 83).

Only a few of the participants were considering a move. A participant was looking to move and explained that she and her husband were looking for real estate somewhere in Hamilton where they could be within walking distance to shops and transit. While she did not want to move, she believed that it was silly to not make arrangements since they would not be able to continue living where they were when they could no longer drive.

4.4. "I am totally dependent": social and emotional isolation

Participants were asked about what not being able to drive meant or might mean for their mental health and socialization at this life stage. Here, the participants who were no longer driving were able to provide insights into some of the consequences and feelings associated with the loss of the ability to drive. For participants who no longer drive, they described the loss of independence and greater reliance on other people. These changes were considered life altering, and in some instances, traumatic. Being dependent and relying on others for rides evoked feelings of being a burden to other people, including family members:

I am totally dependent. I have a daughter that drives me, a son that drives me, and two granddaughters that can drive me, and a son-in-law that can drive me. So, I am not lacking drivers. It sounds simple but it is not. For me it is very complicated. It asks a lot of very, very busy people because everybody works, it asks a lot of their time. It asks a lot of me. (Participant 14, female non-driver aged 88).

It's hard to get there [the library] without bothering somebody and then if my daughter brings me down she has to come back and get me. I would like to have the basement cleaned up, but Costco didn't have shelves that means that I would have to go to two or three [stores]. That would be a whole day for my daughter. Imposing on people and yet you can't do anything else, really. (Participant 1, female non-driver aged 86).

Participants who were no longer driving and lived alone experienced increased difficulty socializing and getting to activities. Some of this isolation was caused by friends also aging and not being able to drive to visit, and some was the lack of transportation to social activities

or places such as the public library. Those who had family close by that visited regularly helped prevent further isolation of non-driving participants.

For those who were still driving, the fear of losing the ability to drive evoked a fear of social and emotional isolation. As previously noted, moving would result in removal from their social circles and family members, which increased their fear of social isolation. A participant explicitly highlighted how she might get depressed if she could no longer drive or find alternative transportation:

We will be lost. We will be lost because of what we do whether it is social interaction or just activities and things we have been involved in or ability to get groceries, go to church, sort of all the mainstay kind of thing, you would like to be able to do. (Participant 9A, female driver aged 71).

Another participant equated driving with the ability to get around the community to exercise both the mind and body:

I am big on mind and body so I think that if I were depressed [from not driving], it would definitely affect my health in some way. You become isolated [when not able to drive], you don't do anything and the less exercise the more I guess crippled you get. (Participant 2, female driver aged 83).

5. Conclusions

This paper explored the transportation needs of older adults living in rural areas and small towns with a specific focus on how older adults in these geographic areas plan for driving cessation and the resulting consequences of changes in driving patterns and loss of licensure can have on their emotional and social well-being. Results from our qualitative analysis echo findings in the literature (Liddle et al., 2014; Metz, 2000; Matz-Costa et al., 2014; Spinney et al., 2009; van den Berg et al., 2016; Litwin and Levinson, 2018; Musselwhite and Shergold, 2013; Zeitler and Buys, 2015) where the personal automobile is preferred mode of transportation for out-of-home activities, the importance of driving as a link to the broader community and ensuring personal health and well-being, social inclusion, participation in the community, and changes in driving behaviours as individuals self regulate. The difficulty of continuing to live in a rural area with few transport options and without a license highlighted the challenges shared by participants with the lack of alternative mobility tools including public transit or active transportation options which would enable engagement in their out-of-home mobility needs (Scott and Axhausen, 2006). Importantly, research evidence suggests that reductions in the time spent driving are not balanced with an increase in the time spent as a passenger in an automobile or walking (Grengs, 2001; King and Scott-Parker, 2017). In other words, the lack of alternative transportation modes in rural areas further disadvantages these populations and places residents at greater risk of social isolation and declining health (i.e., Asse et al., 2014; Chihuri et al., 2016; Edwards et al., 2009; Freeman et al., 2006; Hwang and Hong, 2018; Liddle et al., 2014).

Findings from this study validate and build on previous findings from the existing literature when it comes to the challenges associated with driving and driving cessation in older adulthood. As already noted, the results confirm the personal automobile as the preferred means of transportation amongst older adults in rural areas and small towns. For older adults in these geographic areas, limited transportation options are compounded by a lack of infrastructure and public investment in transportation alternatives, a lack of personal knowledge or experience in using alternatives to the automobile, constraints in terms of personal health and mobility, prohibitive costs, as well as inconvenience Hansen et al., 2020. As such, physical access and monetary access together shape the use of alternative mobility options, with those at greatest risk to poor transportation outcomes (and therefore more likely to be socially isolated) including the frail, individuals in poor health, people with limited financial resources, and people without large social networks that can aid with transportation.

While the literature has linked driving cessation with a higher risk of social isolation (i.e., Litwin and Levinson, 2018; Musselwhite and Shergold, 2013; Shergold et al., 2012; Zeitler and Buys, 2015), rural residents are further disadvantaged given the lack of other transportation alternatives. Despite the relative proximity of respondents to larger urban centres where multiple transportation options are available, respondents noted that family and friends were the only feasible alternative. However, a reliance on family and friends was also problematic given the timing and needs associated with driving, along with the feeling that individuals were imposing on their family and friends to meet their transportation needs. Consequently, living in a rural area without a license and with limited transportation options adds an additional complicating factor associated with the ability to successfully age in place (Menec et al., 2015). Given the greater distances, the lack of other mobility alternatives, including public transit and/or the inability to engage in active transportation (i.e., walking, biking), rural residents rely more heavily on their personal automobile for their transportation and out-of-home activities.

Residents of rural areas have been observed to be more likely to hold a valid driver's license and to retain their license longer (Spinney et al., 2020; Turcotte, 2012), with their residential location potentially providing insight into why this is the case: For older drivers in rural areas, it may well be that despite declining health and recommendations to cease driving, they continue to cope and hold onto their license for as long as possible largely because of the lack of transportation alternatives. Driving sustains their connection to social networks in their community, and no longer being able to drive means such networks will be negatively impacted, resulting in reduced out-of-home activities, increased social isolation and loneliness, perceived loss of independence and quality of life, greater rates of depression, and decreased ability to care for oneself and access to health care, as noted elsewhere in the literature (i.e., Brown et al., 2017; Bryanton et al., 2010; Fonda et al., 2001; Hwang and Hong, 2018; Litwin and Levinson, 2018; Mattson, 2011).

Planning for driving cessation also entails the potential for relocation. Interestingly, rather than financial factors or the need to downsize driving the need to relocate (Erickson et al., 2006; Roy et al., 2018), the need to relocate was instead primarily framed with respect to increasing or improving transportation options that would enable access to services or social opportunities.

As noted by respondents, however, most did not want to relocate and give up their current living situation. Understanding the coping behaviours that allowed these individuals to remain on their own is beyond the capability of the current research. Further, local relocations would not solve transportation needs, and these could only be solved by a more disruptive move to a larger urban centre thereby severing connections to friends and activities (Bloem et al., 2008), while longer moves could sever social connections.

If older rural drivers are indeed more likely to forestall the decision to cease driving (i.e., making driving cessation a gradual process (Musselwhite and Shergold, 2013; Siren and Haustein, 2015)), it raises an interesting question around planning for driving cessation, with Musselwhite (2011) suggesting that programs should be available to allow drivers to plan for the day when they can no longer drive and therefore ease the transition into non-driving. The current results suggest our participants did little to no planning for the time when they cease to drive, and for them the transition from driving to driving cessation was abrupt. Indeed, it would appear that older adults expect to continue to drive indefinitely with only self-regulated modifications to their driving behaviour. While some may perceive that older drivers are unwilling to discuss driving cessation, it may be that fear about how driving cessation would change everything, and they are overwhelmed by how they might be able to function given their current living situation or circumstances. When the ability to drive is lost, there are significant implications in terms of socialization and isolation. Further, the loss of the ability to drive signals yet another difficult transition and

can prompt an emotional response that is often overlooked or left unmet, requiring further social and emotional support for the older adult in question.

Limitations to the current work should be noted. First, although our respondents all resided in rural areas and did not have access to public transit services, individuals were still no further than a 30 to 40 min drive from a major Canadian city. In other words, we have not captured individuals who live in more 'rural or remote' locations and are thus faced with even greater distance and travel challenges associated with accessing urban services. Still, as an initial exploration, this paper highlights the challenges older drivers experience in these locations, including the challenges of planning ahead for driving cessation, as well as the challenges they face with losing access to their own automobile. Moreover, despite their proximity to a larger urban centre, none of the participants with whom we spoke had access to public transit. Second, our sample included only a small number of non-drivers. While small number may in fact reflect the reality (in that drivers who are faced with cessation have already relocated), it would be instructive to determine the extent (proportion) of non-drivers in these situations, and continue to explore their transportation options, as well as consideration of their next steps and means of coping with driving cessation in a rural context.

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References

- Adler, G., 2010. Driving decision-making in older adults with dementia. *Dementia* 9, 45–60.
- Arcury, T.A., Preisser, J.S., Gesler, W.M., Powers, J.M., 2006. Access to transportation and health care utilization in a rural region. *J. Rural. Health* 21 (1), 31–38.
- Asse, L.M.D., Fabrigoule, C., Helmer, C., Laumon, B., Lafont, S., 2014. Automobile driving in older adults: factors affecting driving restriction in men and women. *J. Am. Geriatr. Soc.* 62 (11), 2071–2078.
- Bloem, B.A., van Tilburg, T.G., Thomese, F., 2008. Changes in older Dutch adults' role networks after moving. *Pers. Relat.* 15 (4), 465–478.
- Braun, V., Clarke, V., 2006. Using thematic analysis in psychology. *Qual. Res. Psychol.* 3 (2), 77–101.
- Brown, K., McLaughlin, S., Vivoda, J., 2017. Driving cessation and social engagement: participation in activities away from the home setting. *The Gerontologist* 56 (3), 364.
- Bryanton, O., Weeks, L.E., Lees, J.M., 2010. Supporting older women in the transition to driving cessation. *Activ. Adapt. Aging* 34, 181–195.
- Buys, L.R., Carpenter, L., 2002. Cessation of driving in later life may not result in dependence. *Austr. J. Age.* 21, 152–155.
- Chihuri, S., Mielenz, T.J., DiMaggio, C.J., Betz, M.E., DiGuseppi, C., Jones, V.C., Li, G.H., 2016. Driving cessation and health outcomes in older adults. *J. Am. Geriatr. Soc.* 64 (2), 332–341.
- Collia, D.V., Sharp, J., Giesbrecht, L., 2003. The 2001 national household travel survey: a look into the travel patterns of older Americans. *J. Saf. Res.* 34, 461–470.
- Curl, A.L., Stowe, J.D., Cooney, T.M., Proulx, C.M., 2014. Giving up the keys: how driving cessation affects engagement in later life. *The Gerontologist* 54 (3), 423–433.
- Dahan-Oliel, N., Mazer, B., Gélinas, I., Dobbs, B., Lefebvre, H., 2010. Transportation use in community-dwelling older adults: association with participation and leisure activities. *Can. J. Aging* 29 (4), 491–502.
- Dandy, K., Bollman, R.D., 2008. Seniors in Rural Canada. Rural and Small Town Canada Analysis Bulletin. Vol. 7(8) Statistics Canada Catalogue, Ottawa (no. 21-006-X).
- Davey, J.A., 2007. Older people and transport: coping without a car. *Ageing Soc.* 27, 49–65.
- Dickerson, A.E., Molnar, L.J., Bédard, M., Eby, D.W., Berg-Weger, M., Choi, M., Grigg, J., Horowitz, A., Meuser, T., Myers, A., 2017. Transportation and aging: an updated research agenda to advance safe mobility among older adults transitioning from driving to non-driving. *The Gerontologist* 0 (0), 1–7.
- Edwards, J.D., Lunsman, M., Perkins, M., Rebok, G.W., Roth, D.L., 2009. Driving cessation and health trajectories in older adults. *J. Gerontol.* 64, M1290–M1295.
- Erickson, M.A., Krout, J., Ewen, H., Robison, J., 2006. Should I stay or should I go? Moving plans of older adults. *J. Hous. Elder.* 20 (3), 5–22.
- Fonda, S.J., Wallace, R.B., Herzog, A.R., 2001. Changes in driving patterns and worsening depressive symptoms among older adults. *J. Gerontol.* 56, S343–S351.
- Freeman, E.E., Gange, S.J., Muñoz, B., West, S.K., 2006. Driving status and risk of entry into long-term care in older adults. *Am. J. Public Health* 96, 1254–1259.
- Graham, H., de Bell, S., Flemming, K., Sowden, A., White, P., Wright, K., 2018. Older people's experiences of everyday travel in the urban environment: a thematic

- synthesis of qualitative studies in the United Kingdom. *Age. Soc.* 1–27. <https://doi.org/10.1017/S0144686X18001381>.
- Grengs, J., 2001. Does public transit counteract the segregation of carless households? *Transp. Res. Rec.* 1753, 3–10.
- Hansen, Stine, Newbold, K. Bruce, Scott, Darren M., Vrkljan, Brenda, Grenier, Amanda, Huang, Kai, et al., 2020. Left Behind: How a Lack of Transportation Options Leave Older Rural Populations Stranded. In: Skinner, Mark, Winterton, Rachel, Walsh, Kieran (Eds.), *Rural Gerontology: Towards Critical Perspectives on Rural Ageing*. Routledge, London, pp. 65–74 In press.
- Haustein, S., Siren, A., 2014. Seniors' unmet mobility needs – how important is a driving licence? *J. Transp. Geogr.* 41, 45–52.
- Hjorthol, R.J., 2012. Transport resources, mobility and unmet transport needs in old age. *Ageing Soc.* 33, 1190–1211.
- Hjorthol, R.J., Levin, L., Sirén, A., 2010. Mobility in different generations of older persons: the development of daily travel in different cohorts in Denmark, Norway and Sweden. *J. Transp. Geogr.* 18, 624–633.
- Hwang, Y., Hong, G.R., 2018. Predictors of driving cessation in community-dwelling older adults: a 3-year longitudinal study. *Transp. Res. F* 52, 202–209.
- Kim, S., 2011. Transportation alternatives of the elderly after driving cessation. *Transp. Res. Rec.* 2265, 170–176.
- Kim, S., Ulfarsson, G.F., 2004. Travel mode choice of the elderly: effects of personal, household, neighborhood, and trip characteristics. *Transp. Res. Rec.* 1894, 117–126.
- King, M.J., Scott-Parker, B.J., 2017. Older male and female drivers in car-dependent settings: how much do they use other modes, and do they compensate for reduced driving to maintain mobility? *Ageing Soc.* 37, 1249–1267.
- Klink, D., 2018. Conducting joint interviews with couples: ethical and methodological challenges. *Qual. Health Res.* 28 (5), 844–854.
- Liddle, J., Reaston, T., Pachana, N., Mitchell, G., Gustafsson, L., 2014. Is planning for driving cessation critical for the well-being and lifestyle of older drivers? *Int. Psychogeriatr.* 26 (7), 1111–1120.
- Litwin, H., Levinson, M., 2018. The association of mobility limitation and social networks in relation to late-life activity. *Ageing Soc.* 38, 1771–1790.
- Marottoli, R.A., de Leon, C.F., Glass, T.A., Williams, C.S., Cooney, L.M., Berkman, L.F., 2000. Consequences of driving cessation decreased out-of-home activity levels. *J. Gerontol. Ser. B Psychol. Sci. Soc. Sci.* 55 (6), S334–S340.
- Mattson, J., 2011. Transportation, distance, and health care utilization for older adults in rural and small urban areas. *Transp. Res. Rec.* 2265, 192–199.
- Matz-Costa, C., Besen, E., James, J.B., Pitt-Catsouphes, M., 2014. Differential impact of multiple levels of productive activity engagement on psychological well-being in middle and later life. *The Gerontologist* 54 (2), 277–289.
- Menec, V., Hutton, L., Newall, N., Nowicki, S., Spina, J., Veselyuk, D., 2015. How 'age-friendly' are rural communities and what community characteristics are related to age-friendliness? The case of rural Manitoba, Canada. *Ageing Soc.* 35 (1), 203–223.
- Metz, D.H., 2000. Mobility of older people and their quality of life. *Transp. Policy* 7, 149–152.
- Musselwhite, C., 2011. The importance of driving for older people and how the pain of driving cessation can be reduced. *J. Dement. Mental Health* 15 (3), 22–26.
- Musselwhite, C., Haddad, H., 2010. Mobility, accessibility and quality of later life. *Qual. Age. Old. Adults* 11 (1), 25–37. <https://doi.org/10.5042/qaoa.2010.0153>.
- Musselwhite, C., Shergold, I., 2013. Examining the process of driving cessation in later life. *Eur. J. Ageing* 10 (2), 89–100.
- Newbold, K.B., Scott, D.M., 2018. Insights into public transit use by Millennials: the Canadian experience. *Travel Behav. Soc.* 11, 62–68.
- Newbold, K.B., Scott, D.M., Spinney, J.E.L., Kanaroglou, P., Páez, A., 2005. Travel behavior within Canada's older population: a cohort analysis. *J. Transp. Geogr.* 13, 340–351.
- Páez, A., Scott, D., Potoglou, D., Kanaroglou, P., Newbold, K.B., 2007. Elderly mobility: demographic and spatial analysis of trip making in the Hamilton CMA, Canada. *Urban Stud.* 4, 123–146.
- Pucher, J., Renee, J.L., 2005. Rural mobility and mode choice: evidence from the 2001 National Household Travel Survey. *Transportation* 32, 165–186.
- Rosenbloom, S., 2001. Sustainability and automobility among the elderly: an international assessment. *Transportation* 28, 375–408.
- Roy, N., Dubé, R., Després, C., Freitas, A., Légaré, 2018. Choosing between staying at home or moving: a systematic review of factors influencing housing decisions among frail older adults. *Plus One* 13 (1), e0189266. <https://doi.org/10.1371/journal.pone.0189266>.
- Sacker, A., Ross, A., MacLeod, C.A., Netuveli, G., Windle, G., 2017. Health and social exclusion in older age: evidence from Understanding Society, the UK household longitudinal study. *J. Epidemiol. Commun. H* 71, 681–690.
- Schuurman, N., Berube, M., Crooks, V.A., 2010. Measuring potential spatial access to primary health care physicians using a modified gravity model. *Can. Geogr.* 54, 29–45.
- Scott, D.M., 2012. Route choice behavior of Canadian seniors. In: Paper presented at the International Association of Travel Behavior Conference, Toronto, July 15–20.
- Scott, D.M., Axhausen, K.W., 2006. Household mobility tool ownership: modeling interactions between cars and season tickets. *Transportation* 33, 311–328.
- Scott, D.M., Newbold, K.B., Spinney, J.E.L., Mercado, R.G., Páez, A., Kanaroglou, P.S., 2009. New insights into senior travel behavior: the Canadian experience. *Growth Chang.* 40, 140–168.
- Shergold, I., Parkhurst, G., 2012. Transport-related social exclusion amongst older people in rural Southwest England and Wales. *J. Rural. Stud.* 28, 412–421.
- Shergold, I., Parkhurst, G., Musselwhite, C., 2012. Rural car dependence: an emerging barrier to community activity for older people. *Transp. Plan. Technol.* 35 (1), 69–85. <https://doi.org/10.1080/03081060.2012.635417>.
- Siren, A., Haustein, S., 2015. What are the impacts of giving up the driving licence? *Ageing Soc.* 35, 1821–1838.
- Smith, G.A., Porter, M.M., Cull, A.W., Mazer, B.L., 2016. Seasonal and weather effects on older drivers' trip distances. *Can. J. Aging* 35 (S1), 59–68.
- Spinney, J.E.L., Scott, D., Newbold, K., 2009. Transport mobility benefits and quality of life: a time-use perspective of elderly Canadians. *Transp. Policy* 16, 1–11.
- Spinney, J.E.L., Newbold, K.B., Scott, D.M., Vrkljan, B., Grenier, A., 2020. The impact of driving cessation status on out-of-home and social activity engagement among older Canadians. *J. Transp. Geogr.* 85 <https://doi.org/10.1016/j.jtrangeo.2020.102698>. (Forthcoming).
- Statistics Canada, 2016. Focus on Geography Series, 2016 Census. <https://www12.statcan.gc.ca/census-recensement/2016/as-sa/fogs-spg/Facts-can-eng.cfm?Lang=Eng&GK=CAN&GC=01&TOPIC=1>.
- Statistics Canada, 2017. Population Centre and Rural Area Classification 2016. <https://www.statcan.gc.ca/eng/subjects/standard/pcrac/2016/introduction> (Accessed 17 December 2019).
- Turcotte, M., 2012. Profile of seniors' transportation habits. *Can. Soc. Trends* 93 (Statistics Canada Catalogue no. 11–008).
- van den Berg, P., Kemperman, A., de Kleijn Boy and Borgers A., 2016. Ageing and loneliness: the role of mobility and the built environment. *Travel Behav. Soc.* 5, 48–56.
- Vrkljan, B., Cammarata, M., Marshall, S., Naglie, G., Rapoport, M., Sangrar, R., Stinchcombe, A., Tuokko, H., 2018. Chapter #11: transportation mobility. In: Canadian Longitudinal Study on Aging (CLSA) report on Health and Aging in Canada. Findings from Baseline Data Collection 2010–2015. Funders: Public Health Agency of Canada & Employment and Social Development Canada – Government of Canada.
- Waldorf, B., 2001. Anticipated mode choice following driving cessation. *Eur. Res. Reg. Sci.* 11, 22–40.
- Zeitler, E., Buys, L., 2015. Mobility and out-of-home activities of older people living in suburban environments: 'because I'm a driver, I don't have a problem'. *Ageing Soc.* 35, 785–808.