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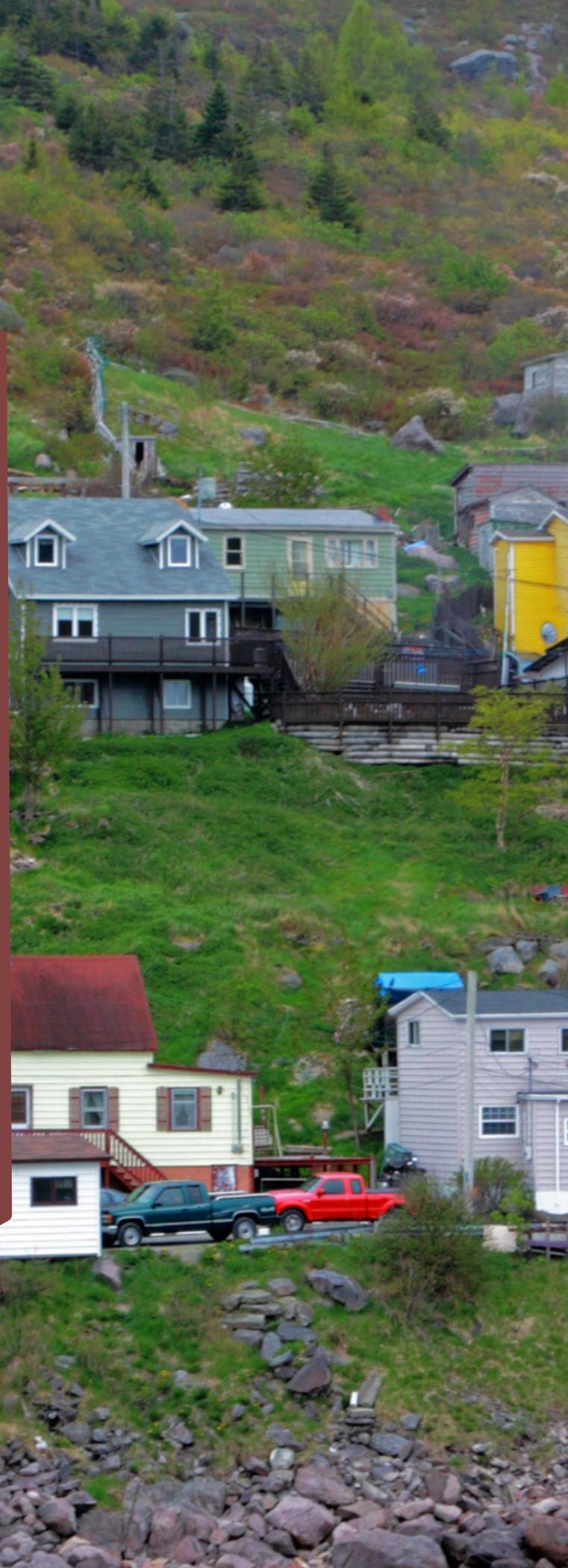
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Younger Adults' Attitudes towards Older Adults: Does Growing up in a Rural Community Matter?

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Acknowledgements

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List of abbreviations including statistical symbols

RASD: Refined Aging Semantic Differential

NL: Province of Newfoundland and Labrador

t: t test value

F: Analysis of Variance value

df: degrees of freedom

η_p^2: Partial eta squared. Estimate of how much variance is accounted for by a factor. The higher the value, the stronger the effect.

ANOVA: Analysis of variance

M: Mean

SD: Standard deviation

R² (or r²): The coefficient of determination

Regression equation: $Y = a + bX + e$

> **Y** is the value of the Dependent variable (Y), what is being predicted or explained

> a or Alpha, a constant which equals the value of Y when the value of X=0, that is the Y intercept

> b or Beta, the coefficient of X; the slope of the regression line; how much Y changes for each one-unit change in X.

> **X** is the value of the Independent variable (X), what is predicting or explaining the value of Y

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Executive Summary

Introduction

The proportion of older adults in the population is increasing rapidly in all western industrialized countries including Canada giving rise to social, political and economic challenges. Within Canada, in 2020 the province of Newfoundland and Labrador (NL) had the highest proportion of older adults (22.3%) of all Canadian provinces and territories (Statistics Canada, 2020). Given the aging demographics, it is important to understand how older adults are perceived by younger adults. Negative attitudes can contribute to ageist behaviours and to discrimination and mistreatment of older people, despite the strengths and benefits that come when older adults are able to participate fully in their communities, sharing their time, knowledge and resources.

Some research has found that older adults (typically defined as ages 65 and older) are perceived positively. However, most research indicates that negative attitudes/perceptions of older adults tend to predominate. Many of the more negative views of older adults tend to be reported by younger age groups. One factor that might reduce young adults' negative attitudes toward older adults is contact with older adults. Research investigating intergenerational contact has found that cross-age contact can challenge stereotypes and modify the attitudes and perceptions that younger and older adults have of one another.

Rationale

Is it possible that growing up in a small rural community may increase intergenerational contact and that this increased contact, particularly good quality contact, could improve younger adults' attitudes toward older adults? Perhaps the typical negative attitudes toward older adults are ameliorated in rural NL where 60% of the province's population reside (Simms &

Greenwood, 2015)? However, it is not clear whether this is the case in rural NL -- or anywhere in rural Canada -- as younger rural Canadians' attitudes toward older adults have not been systematically assessed. There is also a paucity of Canadian data on the attitudes of younger adults from non-rural settings toward older adults.

Methodology

The present research employed an online survey to assess the attitudes of younger male and female adults' toward fictitious older male and female adults (ages 65 and above). The younger adults were undergraduate students who grew up in rural[1] and non-rural communities, mostly in NL. The frequency and quality of intergenerational contact was assessed for both younger rural and non-rural participants and their friends to determine if these factors affected attitudes toward older adults. Finally, the study also evaluated the possible influence of the gender of the younger adult doing the rating and the assigned gender of the older adult being rated. With respect to the gender of the older adult, some researchers have reported that older males are perceived more favourably than older females who tend to be subjected to more negative biases and prejudices but research results are mixed. For example Marques et al. (2020) reviewed 199 studies and found no consistent effect of gender of the older adult on attitudes.

Results

From the total of 321 participants who completed the survey, 265 provided usable data. There were 214 female participants (mean age = 21 years) and 47 male participants (mean age = 24 years). Of the 265 participants whose data was analysed, 75% came from home

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[1] One of several definitions that Statistics Canada (2007) provides for rural is communities with a population of less than 1000. We used this definition for some analyses and the actual population for other analyses

communities in NL, 15% had home communities in Canada outside of NL and 16 (6%) had

home communities outside of Canada

Statistics Canada (2016) census data was used to estimate the populations of most of

the home communities of Canadian participants. For non-Canadian participants, the population

of their home community was obtained by Google searches and links to reputable sources.

Overall, attitudes toward older adults were slightly positive among most groups. Analysis

of variance indicated that younger females rated older adults (female and male) significantly

more positively than younger males. Attitudes toward older females were significantly more

positive than toward older males for both female and male younger adults who grew up in either

rural or non-rural home communities. Size of home community did not affect attitudes toward

older adults. Quality of intergenerational contact was the strongest predictor of attitudes toward

older adults. Other analyses confirmed these findings,

Introduction

Project Background/Literature Review

The proportion of older adults in the population is increasing rapidly in all western industrialized countries including Canada giving rise to social, political and economic challenges. Within Canada, the province of Newfoundland and Labrador (NL) had the highest proportion of older adults (22.3%) of all Canadian provinces and territories in 2020 (Statistics Canada, 2020). Given the aging demographics, it is important to understand how older adults are perceived by younger adults. Negative perceptions can contribute to ageist behaviours and to discrimination and mistreatment of older people, despite the strengths and benefits that come when older adults are able to participate fully in their communities, sharing their time, knowledge and resources. Moreover, the wellbeing of older adults depends in part of the strength of their social connections - to friends and family (Litwin & Shiovitz-Ezra, 2010), but also to the communities of which they are a part (Cramm, Van Dijk, & Nieboer, 2012). Therefore, given the importance of the topic, and the lack of research -- particularly in NL -- we examined determinants of younger adults' attitudes toward older adults in order better understand the factors affecting these attitudes. Understanding the determinants of younger adults' attitudes toward older adults will assist in efforts to promote more positive intergenerational attitudes and interactions between younger and older adults.

Stereotypes can be defined as cognitive representations, either positive or negative, of members who belong to a particular group such as older adults (Harwood, 2007). Stereotypes can affect attitudes, which constitute an overall evaluation of a person or group of people that influences one's emotional, cognitive, and behavioral responses to that person or group of people (Harwood, 2007). For example, younger adults may believe that older adults are

"crabby" and "impatient" (cognitive response based on stereotypes), may feel afraid (emotional response) of older adults and, therefore, may avoid interacting (behavioral response) with older adults.

Some research has found that older adults (typically defined as ages 65 and older) are perceived positively. Lyons' (2009) review of research found that older people are sometimes perceived positively as active members of the community, loyal, sociable, and warm. Other studies have also reported that older people have been perceived as warm, sincere, kind, and motherly (e.g. Cuddy, Norton, & Fiske, 2005; Barrett & Cantwell 2007). However, most research indicates that negative attitudes/perceptions of older adults tend to predominate. According to Lyons' literature review, older people are stereotyped as unattractive, sexless, unhappy, lonely, possessing negative personality traits, having poor health and diminishing mental ability and as being excluded from society.

Many of the more negative views of older adults tend to be reported by younger age groups (Kite et al. 2005; Cottle & Glover 2007) suggesting a person's age may be an important factor in how they perceive older people and aging in general. For example, Cottle & Glover (2007) measured the attitudes of undergraduate students toward a younger male adult (approximately 25 years old) and an older female adult (approximately 70 years old). The undergraduates held significantly more negative attitudes toward the older female both at the beginning and at the end of a lifespan human development course they were enrolled in at a large metropolitan university. The negativity of the attitudes toward the older female was reduced upon completion of the course suggesting educational interventions are somewhat effective.

One factor that might reduce young adults' negative attitudes toward older adults is contact with older adults. Some research investigating intergenerational contact has found that

cross-age contact can challenge stereotypes and modify the attitudes and perceptions that younger and older adults have of one another. A meta-analytical review of 63 research studies found that interventions involving intergenerational contact and interventions that provided factual information concerning older adults both significantly improved younger people's attitudes toward older adults (Burnes et al., 2019).

Quality and not frequency of intergenerational contact may be a critical factor. After a systematic literature review of 199 quantitative research papers, Marques et al. (2020) report that the quality of contact with older people is one of the most robust determinants of ageism whereas the frequency of the contact was not related. Other studies (Angiullo et al., 1996; Carmel, Cwikel, & Galinsky, 1992) have found that the amount and frequency of direct contact with older adults was not associated with the development of more positive attitudes toward older adults.

Certain conditions may need to apply to intergenerational interaction/programs in order to challenge stereotypes and promote positive attitudinal change. The contact hypothesis proposes that bringing two different groups of people together can lead to challenging stereotypes and attitudes, but mere "contact is not enough" (Carpenter & Dickinson, 2011, p. 55). Some researchers (e.g. Wittig & Grant-Thompson, 1998) suggest the features of the intergenerational contact that may be important include whether the contact is voluntary, stereotype disconfirming, or between persons of equal status and/or whether it includes cooperation or the possibility to form an ongoing attachment/companionship. In agreement with the contact hypothesis, Knox, Gekoski, and Johnson (1986) proposed that the failure to find a positive relationship between contact with, and attitudes toward, older adults is due to the fact that most research focuses on simply measuring the amount of contact and does not consider the quality of the contact a young person has with older people. Research (e.g., Allan and Johnson, 2009, Bousfield & Hutchinson, 2010, Knox et al., 1986; Schwartz & Simmons, 2001)

that takes into account the quality of contact with older adults has found that positive attitudes toward older people are predicted by the quality of, and not by the frequency of, contact.

While the quality of personal intergenerational contact appears to be important, intergenerational contact between an individual's friends and older adults may also be important. Extended contact theory (Wright, Aron,McLaughlin-Volpe, & Rupp, 1997) focuses on intergenerational contact that is not in-person. Specifically, this theory proposes that knowledge that one's friends from the same group (e.g. other young adults) have friends from another group (e.g. older adults) provides many of the same benefits of having in-person intergenerational friendships including more positive attitudes toward older adults. A sizeable literature supports the efficacy of extended contact in reducing prejudice (Aronson et al., 2016; Cameron, Rutland, Hossain, & Petley, 2011; Eller, Abrams, & Gomez, 2012; Turner, Hewstone, Voci, & Vonofakou, 2008). Specific to ageism, Drury, Hutchison, and Abrams (2016) found that undergraduate students who indicated more extended contact (i.e., friends who had positive relations with older adults) reported more positive attitudes toward older adults. These findings suggest that extended contact may also be an important factor in improving attitudes toward older adults.

Rationale

Is it possible that growing up in a rural environment may increase the frequency and/or the quality of intergenerational contact both direct and extended and that this increased contact, particularly high quality contact, could impact younger adults' attitudes and perceptions of older adults? Perhaps the typical negative attitudes toward older adults are ameliorated in rural NL where 60% of the province's population reside (Simms & Greenwood, 2015)? However, it is not clear whether this is the case in rural NL -- or anywhere in rural Canada -- as younger rural Canadians' attitudes toward older adults have not been systematically assessed.

There is also a paucity of Canadian data on the attitudes of younger adults from non-rural settings toward older adults. The one Canadian study that we were able to identify found that university students tend to hold negative attitudes of older adults and that, compared to women, men have more ageist attitudes (Allan and Johnson, 2009). This study did not, however, assess the attitudes of students whose home communities were rural compared to non-rural.

The few studies that have assessed the effect of the rurality of the home community suggest that growing up in a rural setting may not necessarily improve attitudes toward older adults. Interestingly, younger adults in rural settings in Thailand -- a country known for respect of the elderly -- had more negative attitudes toward older adults than younger adults from urban settings (Sharps, Price-Sharps, & Hanson, 1998). In line with this finding, Gattuso and Saw (1998) reported that university students who grew up in rural Australian communities had significantly more negative attitudes toward their own personal old age than did students who grew up in cities.

Objectives

The present research assessed the attitudes of younger male and younger female adults toward fictitious older male and female adults (aged 65 and older). The younger adults were undergraduate students who grew up in rural and non-rural communities, mostly in NL.

We hypothesized that the younger adults who come from rural communities may have more positive attitudes due, in part, to more intergenerational contact in smaller communities. The frequency and quality of intergenerational contact was assessed for both younger rural and non-rural participants and their friends to determine if these factors affected attitudes toward older adults. Finally, the study also evaluated the possible influence of the gender of the younger adult doing the rating and the assigned gender of the older adult being rated.

Method

Research Methodology and Approach

The study employed a modified version of the Refined Aging Semantic Differential (Polizzi, 2003) which is a frequently used, standardized instrument for assessing attitudes toward older adults. The Refined Aging Semantic Differential (RASD) was part of an online survey which will also gathered information on the age, gender and current level of education of the younger adults.

The younger adults also provided information concerning how frequently they, and their friends, interact with older male and adults to assess the role of frequency of direct and extended intergenerational contact on attitude. We also measured the quality of these contacts as research suggests this may be more important. Greater detail on the methodology used will be presented in the next section.

Participants

Volunteer participants were solicited using posters, in-class announcements in undergraduate Psychology courses, a description on a campus-wide electronic message system and word of mouth. There were three separate calls for participants and a total of 328 participants volunteered to complete the online survey. Participants from Psychology courses received course credit for participation. In each recruitment call, participants were offered the opportunity to have their name entered into a draw for a $100 gift certificate.

Procedure

Participants completed an online survey (see Appendix A) which took approximately 15 minutes to complete. The study was described as assessing "your perceptions of fictitious older

adults (ages 65 and above)". After reading information relevant to informed consent, and giving that consent, participants proceeded to the survey.

The survey first collected some demographic data from participants: age, gender, names of the community or communities participants grew up in, how long they lived in those communities, and current level of education. Next, participants filled out 23 items from the Revised Aging Semantic Differential (Polizzi, 2003). The RASD is a standardized instrument for assessing attitudes toward older adults (see Appendix A). This instrument lists 24 polar opposite adjective pairs such as "cheerful -- -- -- -- -- -- crabby" and "pleasant -- -- -- -- -- -- unpleasant". Respondents check a mark along a 6 point scale for each adjective pair representing their attitudes toward older adults. We made one deliberate and one inadvertent modification to the standard RASD. Firstly the 7 point scale was changed to a 6 point scale to avoid too many "neutral" responses. Secondly, the inclusion of an item checking for participants' attentiveness to the survey led to an error whereby 1 of the 24 items from the original RASD was omitted resulting in 23 original RASD items only being included in the survey. Twelve of the 23 items from the modified RASD had the positive adjective on the leftmost side of the 6 point scale with the negative adjective on the right side of the scale. The other 11 modified RASD items had the negative adjective on the left side of the 6 point scale with the positive adjective on the right side of the scale. For example the first item in the attitudes toward older men section of the survey read:

Please click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Pleasant	○	○	○	○	○	○	Unpleasant

Each of the 23 bipolar adjective pairs was presented on a separate screen and remained in view until the participant pushed the next arrow. Participants were instructed to make their

rating for each item a separate and independent judgment. They were also instructed to not be concerned about ratings of previous items and to not worry or puzzle over individual items." It is your first impression or immediate feeling about older men (or older women) in general that is most important".

Half of the participants (older-men-first condition) first completed the modified RASD scales with older men ("ages 65 or above") in mind. This was followed by several questions assessing the quantity and quality of young adults' interactions with older men and the quantity and quality of their friends' interactions with older men These participants then completed the same modified RASD scales with older women ("ages 65 or above") in mind and the same contact questions for older women. The other half of the participants (older-women-first condition) completed the older women modified RASD items and contact questions first followed by the same items for older men. Whether the first set of modified RASD ratings and contact questions was for older women or for older men was randomly determined for each participant.

Contact questions

There were several questions related to the quantity and quality of younger adults' contact with older adults. The first question asked how often the participant has contact with older men (or older women in the older-women first condition) with response options: daily, weekly, monthly, or almost never. The second contact quantity item asked participants to enter the number of older men (or older women) that they have contact with.

The first contact quality item asked participants to rate the quality of their previous contact with older men (or older women) on three separate 5 point Likert-type scales. The scales were:

Pleasant   o   o   o   o   o   Unpleasant:

Voluntary   o   o   o   o   o   Involuntary

Bad Quality   o   o   o   o   o   Good Quality

The next two questions concerned the quality of contact that participants' friends had with older adults. The first item asked participants to indicate how many of their close friends have positive relationships with older men (or older women) on a 5 point Likert scale:

None at all   o   o   o   o   o   Very many

The second item asked participants to indicate how many of their close friends have negative relationships with older men (or older women) on the same 5 point Likert scale as above.

An ethics review application was submitted to the Grenfell Campus research ethics board prior to data collection and approval was received on Dec. 20, 2019. Approval for an extension was issued on September 29, 2020. The first call for participants took place on February 5, 2020 with a participation deadline date of July 31, 2020. A second call for participants was issued on June 2, 2020 with a deadline date of August 31, 2020. A third call for participants was issued on Oct. 5 with a deadline of November 30, 2020. Due to the small number of rural participants completing the survey in the first two calls, the third call mentioned that we were particularly interested in rural participants. The results presented use data from all three calls for participants**.**

Results

Classification of Participants' Home Community: Rural or Non-Rural

Statistics Canada (2016) Census data was used to estimate the populations of most of the home communities of Canadian participants. For a few smaller Canadian communities the population was not found in the Statistics Canada (2016) census. For these communities and

for non-Canadian communities, the name of the home community was searched using Google and links to reputable sources (e. g. https://worldpopulationreview.com/world-cities/) were consulted to obtain the population.

Demographics of Participants

A total of 321 participants completed the survey. From the total of 321 participants, 265 completed at least one of the main measures: attitude toward older male adults and attitude toward older female adults. Most participants (n= 245) completed both measures. There were 214 female participants (mean age = 21 years) and 47 male participants (mean age = 24 years). Four participants did not state their gender. Of the 265 participants whose data was analysed, 199 (75%) came from home communities in NL, 39(15%) had home communities in Canada outside of NL, 16 (6%) had home communities outside of Canada and for 11 (4%) participants the location of the home community could not be determined or was not provided.

The majority of the younger adult participants (n=210) were undergraduates as the participants were recruited mainly from Grenfell and St. John's campuses of Memorial University. There were 34 participants who were pursuing a master's degree and 18 participants identified as high school graduates. Three participants did not state their current level of education.

Using the Statistics Canada's definition of rural and non-rural as communities with populations of <1000 and ≥1000, there were 61 participants who came from a rural home community, 192 who came from a non-rural community and 12 participants who did not mention their home community. With regard to non-rural participants, 151 identified as female and 38 as male. For rural participants 54 were female, 6 were male, and 4 participants did not mention their gender. The fact that there were only six rural male participants despite the specific

request for rural participants in the third call is problematical for assessing that group's attitudes toward older adults.

Attitudes toward Older Adults: Size of Home Community Effects

Overall mean attitude of young adults toward older adults was calculated by averaging each participant's ratings (1 to 6) across the 23 bipolar adjective scales taken from the modified RASD questionnaire. Reverse scoring was employed for items with a negative adjective at the left most end of the scale. More positive attitudes are represented by higher mean scores. Figure 1 presents the mean attitudes scores.[2]

Figure 1

Mean Attitudes toward Older Adults by Size of Home Community and Gender of Younger Adults
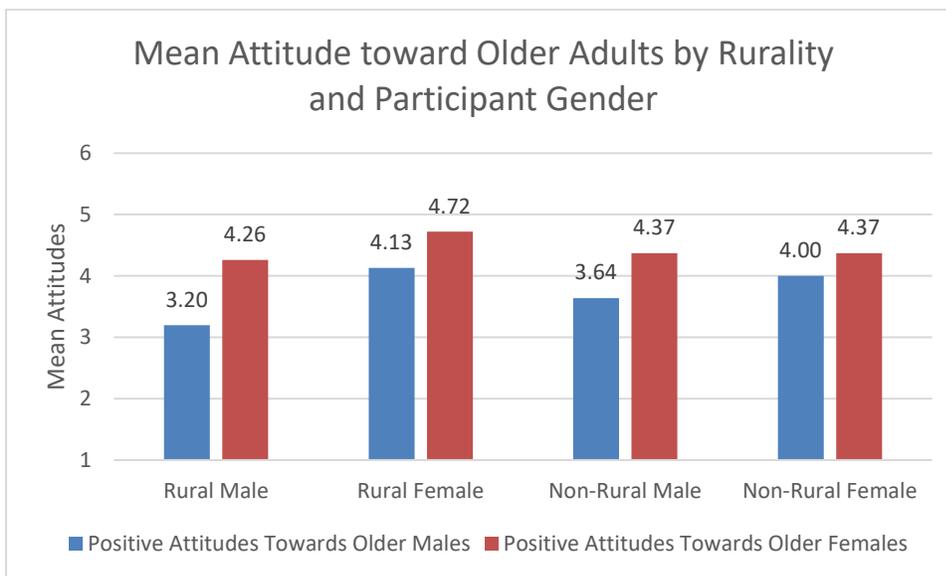
Note: In Figure 1 rural and non-rural is based on the Statistics Canada's definition.

Figure 1 indicates that overall attitudes toward older adults for most of the groups were positive (means (*M*s) > 3.5 on the 6 point scale). Older female adults were rated more

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[2] We also calculated mean attitudes for NL participants only rather than all participants. There was very little difference in means attitudes as most of the participants grew up in NL. See Appendix B for these data.

positively than older male adults by both male and female young adults in both rural and non-rural communities. One sample t-tests indicated that female participants viewed both older males $t(209) = 8.84$, $p < .001$, Cohen's D = 4.55, and females $t(203) = 16.74$, $p < .001$, Cohen's D = 5.46 significantly more positively than the neutral midpoint (3.5) of the six point scales. Male participants viewed older females more positively than the midpoint $t(44) = 6.69$, $p < .001$, Cohen's D = 5.51, but not older males $t(44) = .075$, $p = .459$, $d = 4.112$.

Analysis of Variance (ANOVA)

For ANOVA analyses, we used the Statistics Canada's definition of rural as a community with a population of < 1000. Non-rural was defined as a community with a population of ≥ 1000. A mixed model ANOVA was calculated using younger adults' gender (male or female) and rurality of the younger adults' home community as between subject (independent measures) factors. Gender of the older adult (male or female) was the within subjects (repeated measures) factor.

The ANOVA indicated a significant main effect of the gender of the younger adults, $F(1,226) = 7.70$, p=.006, $\eta_p^2 = .033$. Overall, younger females rated older adults more positively ([3]M=4.23, SD=0.73) than did younger males (M = 3.96, SD = 0.64). The main effect of rurality was not significant, F (1,226) = 0.10, p=.77, $\eta_p^2 = 0.00$. The attitudes of rural participants (M = 4.34, SD =0.73) were similar to non-rural participants (M = 4.13, SD =0.71). The main effect of the gender of the older adult was significant, F (1, 226) = 39.82, p <.001, $\eta_p^2 = .15$. Attitudes towards older female adults (M = 4.43, SD =0.81) were significantly more positive than toward older males (M = 3.95, SD =0.90).

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[3] The means and the standard deviations reported are based on the actual raw data, rather than the estimated marginal means from the ANOVA.

The interaction of gender of the younger adult and gender of the older rated adult was also significant, $F(1,226) = 4.84$, $p = .029$, $\eta_p^2 = .02$. Younger females' ratings of older males (M = 4.04, SD =0.89) was significantly higher than younger males ratings of older males (M = 3.60, SD =0.87, p <.01). At the same time, younger females (M = 4.46, SD =0.82) and younger males (M= 4.30, SD =0.78) rated older females similarly.

The interaction of the rurality of the younger adults' home community and the gender of the older rated adult was not significant, $F(1,226) = 2.66$, $p = .105$, $\eta_p^2 = .012$, nor was the three-way interaction, $F(1,226) = 0.40$, $p = .529$, $\eta_p^2 = .002$. Therefore both rural and non-rural younger adults rated older female adults more positively.

To summarize the ANOVA findings, attitudes toward older females were significantly more positive than toward older males for both young women and young men in both rural and non-rural home communities. This important, and somewhat surprising, finding will be considered further in the Discussion

Regression Analyses

The ANOVA indicated that the attitudes of rural participants did not differ from non-rural participants using the Statistics Canada definition of rural and non-rural. To further assess the effect of rurality, a set of scatterplot regression analyses were calculated using the actual log (base 10) population of the home community of participants, obtained from the 2016 Stats Canada census, rather than the somewhat restrictive definition of rural (population < 1000) and non-rural (population ≥ 1000). We used log population because the actual population data was positively skewed due to some participants coming from very large cities.

In the next four scatterplots, female positive attitudes refers to overall mean attitude rating toward (fictitious) female older adults and male positive attitudes refers to overall mean attitude rating toward (fictitious) male older adults. Gender refers to the gender of participants.

Figure 2

Mean Attitudes of Younger Females towards Older Females as a Function of Log Population

Scatter Plot of female_positive_attitudes by Log_population

Gender: Female

R^2 Linear = 0.022

y=4.99-0.14*x
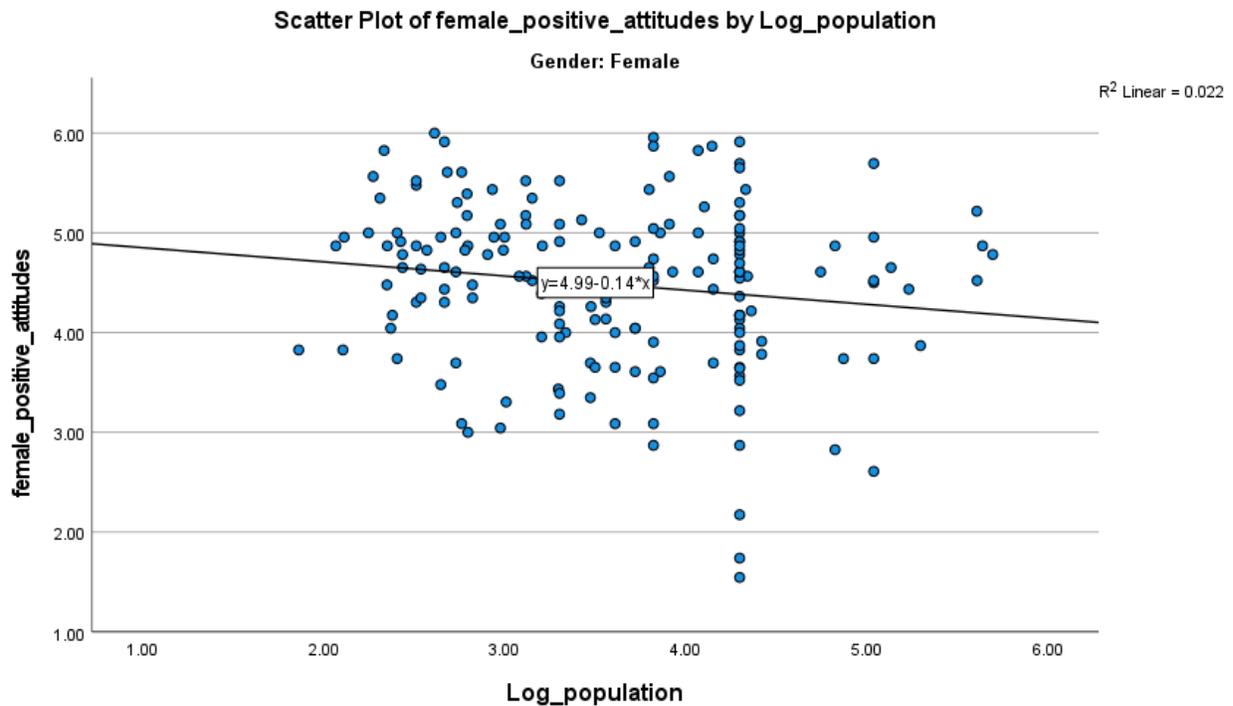
Figure 2 shows that younger female adults had more positive attitudes toward older female adults in smaller communities as hypothesized but the association is weak (r^2 = .02). Less than 2% of the variance in attitudes toward older females is explained by the (log) population of the home community.

The next scatterplot shows the effect of the population of the home community on young females' attitudes toward older male adults.

Figure 3

Mean Attitudes of Younger Females towards Older Males as a Function of Log Population

Scatter Plot of male_positive_attitudes by Log_population
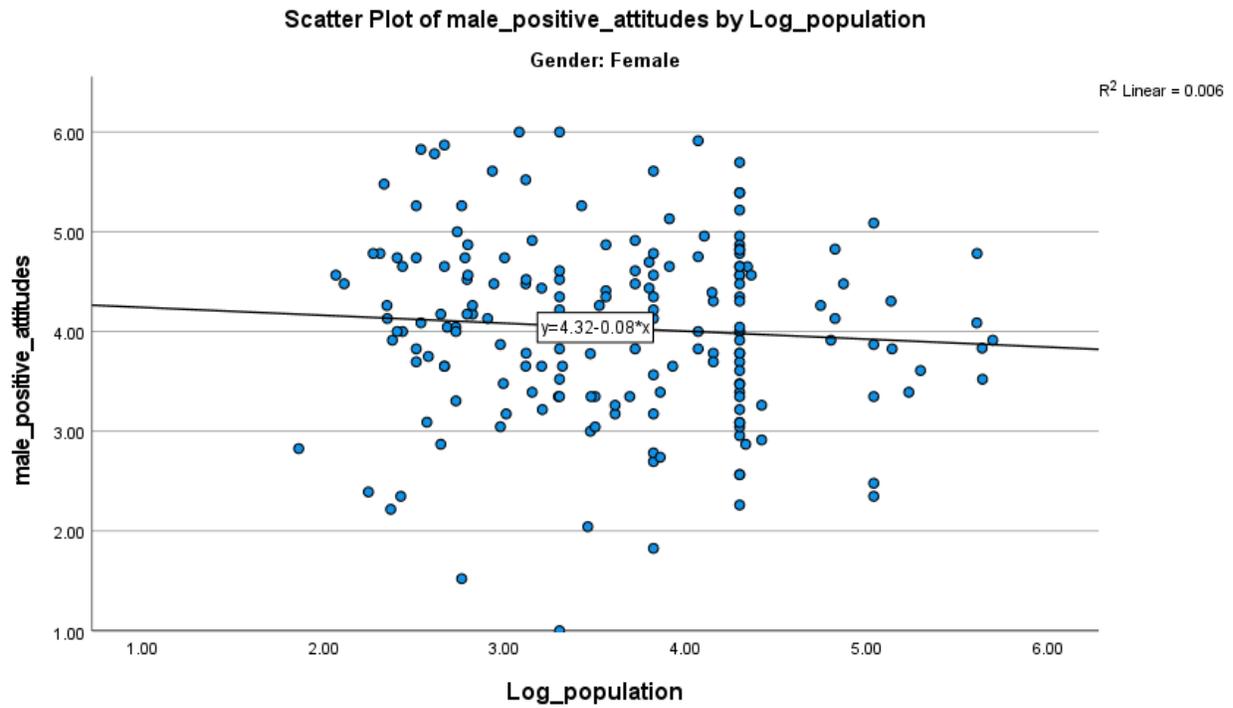
Figure 3 shows little association between the size of the home community population of younger females and their attitudes toward older male adults (r^2 = .006).

The next two scatterplots show the data for younger male participants.

Figure 4

Mean Attitudes of Younger Males towards Older Females as a Function of Log Population
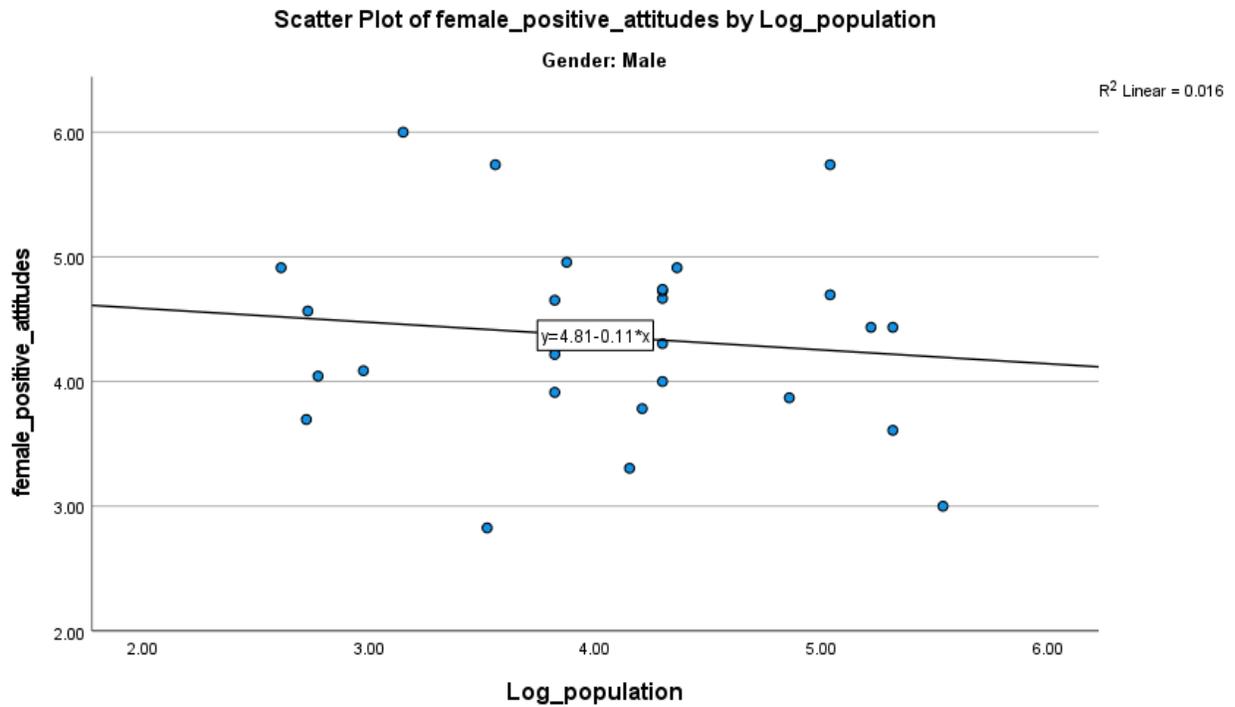
There is a very weak association between the population of male participants' home community and their attitudes toward older females (r^2 = .016).

Figure 5

Mean Attitudes of Younger Males towards Older Males as a Function of Log Population

Scatter Plot of male_positive_attitudes by Log_population

Gender: Male

R^2 Linear = 0.121

y=2.2+0.35*x
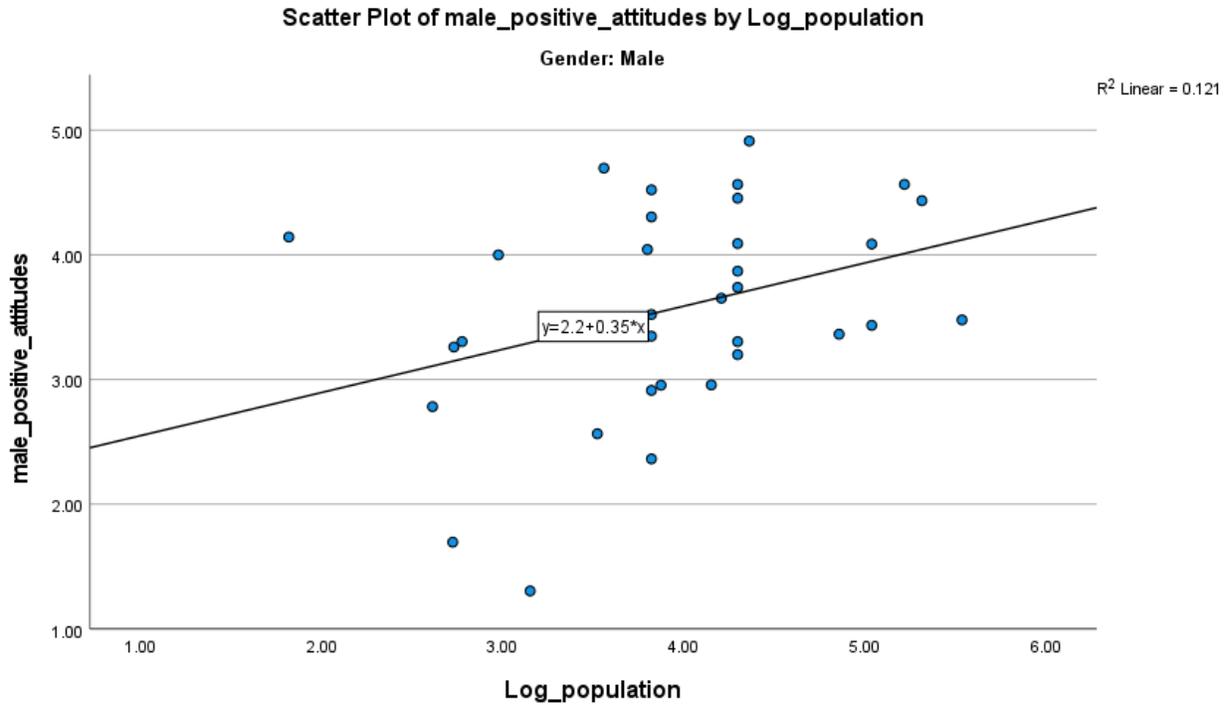
There is a stronger association between the size of male participants' home community and their attitudes toward older males with 12% of the variation in attitude ratings explained. More positive attitudes toward older males are shown in young males from larger communities. However, this effect appears to be largely driven by data from two participants and would require replication in other research to determine the reliability of this effect.

To summarize, the scatterplots generally indicate weak associations between the size of the young adults' home community and their attitudes toward older adults. As suggested by the ANOVA analyses, rurality does not seem to be associated with attitudes toward older adults. Subsequent regression analyses confirmed the lack of an effect of the rurality of the young adults' home community on attitudes toward older adults.

Attitudes towards Older Adults: Regression Analyses

Our primary hypothesis was that the size of the home community that a young adult grows up in would influence the frequency and quality of interactions with older adults, which would then lead to more positive attitudes towards older adults. Prior analyses indicated that size of the home community did not affect attitudes towards older adults. With respect to intergenerational contact, we predicted that growing up in rural communities would lead to increased frequency and quality of contact. Frequency of contact was not as important as the quality of contact in predicting attitudes toward adults.

We ran a series of regressions examining attitudes towards older men and attitudes towards older women separately to further check these hypotheses. The results below are using the log population of the primary community participants listed as the place in which they were raised, in order to address the highly skewed nature of the population sizes. For the non-log versions of the results, which are not substantively different, see Appendix C.

Table 1

Pearson Correlations for Frequency and Quality of Intergenerational Contact data for Older Men

Variable	Number of Exemplars	Frequency of Contact	Quality of Contact	Positive Attitudes	Population
Number of Exemplars	—				
Frequency of Contact	-0.105(0.119)	—			
Quality of Contact	0.039(0.561)	**-0.134(0.038)**	—		
Positive Attitudes	0.128(0.054)	**-0.188(0.003)**	**0.668(<.001)**	—	
Population Of Home Community	-0.032(0.644)	0.118(0.082)	-0.026(0.705)	-0.093(0.158)	—

Note. Format is correlation (p-value). Statistically significant results (p < .05) are bolded. Exemplars refer to number of older men participants said they were thinking of when doing the survey ratings.

Table 2

Coefficients for Regression Predicting Attitudes Towards Older Men

	Unstandardized	Standard Error	Standardized	t	p	95% CI Lower	Upper
(Intercept)	3.934	0.052		75.172	5.22e-147	3.797	4.054
Population of Home Community	-2.927e-7	2.624e-7	-0.060	-1.116	0.266	3.831	4.037
Number of Older Men Contacts	0.001	6.986e-4	0.096	1.792	0.075	-8.10e-7	2.247e-7
Frequency of Contact	-0.075	0.049	-0.083	-1.521	0.130	-1.26e-4	0.003
Quality of Contact	0.622	0.054	0.625	11.533	7.55e-24	-0.171	0.022

ANOVA

Model	Sum of Squares	df	Mean Square	F	p
Regression	74.940	4	18.735	38.241	1.154e-23
Residual	96.513	197	0.490		
Total	171.452	201			

Note. The intercept model is omitted, as no meaningful information can be shown.

The regression results for predicting attitudes towards older men are presented in Table 2. Our model predicted a significant portion of variance in attitudes towards older men, $F(4,197)$ = 38.241, p <.001, R^2 = .426. Although the voluntary nature of contact with older men was also a significant unique predictor, the majority of the predictive ability of our model came from the quality of contact participants reported with older men. Regression results for older women are presented next.

Table 3

Pearson's Correlations – All Variables for Questions Concerning Older Women

Variable	Number of Exemplars	Frequency of Contact	Quality of Contact	Positive Attitudes	Population
Number of Exemplars	—				
Frequency of Contact	-0.080(0.241)	—			
Quality of Contact	0.033(0.625)	-0.096(0.140)	—		
Positive Attitudes	0.095(0.157)	-0.115(0.075)	**0.658(<0.001)**	—	
Log Population of Home Community	-0.055(0.450)	0.110(0.117)	-0.134(0.055)	**-0.160(0.019)**	—

Table 4

Coefficients for Regression Predicting Attitudes Towards Older Females

	Unstandardized	Standard Error	Standardized	T	P	95% CI Lower	95% CI Upper
(Intercept)	4.589	0.181		25.290	3.54e-63	4.231	4.947
Log Population of Home Community	-.044	0.047	-0.054	-.943	0.347	-0.137	0.048
Number of Exemplars	8.206e -4	6.144e -4	0.073	1.336	0.183	-3.912e -4	0.002
Frequency of Contact	-0.049	0.053	-0.051	-0.920	0.359	-0.153	0.056
Quality of Contact	0.611	0.055	0.624	11.159	1.24e -163	0.503	0.719

ANOVA

Model	Sum of Squares	df	Mean Square	F	p
Regression	54.721	4	13.680	35.805	2.30e -22
Residual	73.741	193	0.382		
Total	128.462	197			

Note. The intercept model is omitted, as no meaningful information can be shown.

The pattern of regression results for predicting attitudes towards older women were very similar to attitudes toward older males. Our model predicted a significant portion of variance in attitudes towards older women, $F(4,193) = 35.81$, $p <.001$, $R^2 = .426$. The majority of the predictive ability of our model came from the quality of contact participants reported with older women.

Intergenerational Contact

ANOVAs

We begin with some descriptive statistics and ANOVA analyses related to intergenerational contact between our younger adults and their older adult acquaintances. Quality of contact was measured by participants' ratings on 3, five point subscales: pleasant – unpleasant, voluntary – involuntary, and bad quality – good quality. An overall quality of contact measure was derived by averaging participants' ratings across the 3 subscales. Overall, quality of contact with older adults was rated high (above the midpoint of 3) as shown in in Table 5.

Table 5

Mean Quality of Intergenerational Contact with Older Female and Male Adults

	Older Women	Mean Quality of Contacts (SD)	Older Men	Overall Mean
Younger female participants (n=197)	4.26 (0.83)		3.98 (0.92)	4.12
Younger male participants (n=40)	3.83 (0.86)		3.52 (0.84)	3.68
Overall mean	4.19		3.90	

Note. Quality of contact was measured on a 5 point scale with higher values corresponding to better quality.

A mixed model ANOVA indicated that younger females rated their quality of contact with older adults as significantly more positive than younger males, $F(1,235) = 11.21$, $p < .001$, $\eta_p^2 = .006$. Ignoring the gender of the participants, the quality of contact with older women was significantly more positive than the quality of contact with older males, $F(1.235) = 15.78$, $p <$

.001, η_p^2 = .063. The interaction of participants' gender and the gender of their older

acquaintances was not significant, $F(1, 235) = 0.54$, $p = .817$, $\eta_p^2 = .000$. Therefore, both male

and female younger adults rated quality of their contact higher for older females than older

males.

We also measured the frequency of contact by asking participants to rate how often they

have contact with older men and with older women: daily, weekly, monthly, yearly, almost never.

In the table below, higher values correspond to more frequent contact. As shown in Table 6,

there was relatively frequent contact between the younger adults and their older adult

acquaintances (above the midpoint of 3.0 on the 5 point scale)

Table 6

Mean Frequency of Intergenerational Contact with Older Male and Female Adults

	Older Women	Mean Frequency of Contact (*SD)*	Older Men	Overall Mean
Younger female participants (n=189)	4.11 (0.86)		3.81 (1.01)	3.96
Younger male participants (n = 39)	4.00 (0.97)		3.69 (1.2)	3.85
Overall Mean	4.09		3.79	

Note. Frequency of contact was measured on a 5 point scale with higher values represent more frequent contact. A mean of 4 would correspond to "weekly" contact.

A mixed model ANOVA indicated no significant difference between young women and

men in the frequency of their intergenerational contact with older adults, $F(1, 226) = 0.57$ $p =$

.453, , $\eta_p^2 = .002$ Ignoring the gender of the participants, the frequency of contact with older

women was significantly higher than with older males, $F(1,226) = 15.65$, $p < .001$, $\eta_p^2 = .065$

The interaction of participants' gender and the gender of their older acquaintances was not

significant, $F(1, 226) = 0.12$, $p = 453$, , $\eta_p^2 = .002$. Thus, the more frequent contact with older women held for both younger females and males.

Another survey item, asked the younger adults to provide the number of older female and older male contacts they had. The most frequently reported number of older adult contacts was 1 to 5 for both older women and for older men.

Finally, with regard to intergenerational contact, we also assessed extended contact effects by asking participants how many of their close friends have positive/negative relationships with older women/older men. The greater the number of close friends that have positive relationships with older women the more positive the attitudes towards older women ($r = .41$) and towards older men ($r = .18$). The greater the number of close friends that have positive relationships with older women the higher the rated quality of contact with older women ($r = .42$) and with older men ($r = .18$). The greater the number of close friends that have positive relationships with older men the more positive the attitudes towards older men ($r = .42$) and towards older women ($r = .19$) and the more positive the rated quality of contact with older men ($r = .40$) and with older women ($r = .21$).

Discussion

We predicted that the size of the community that participants were raised in would influence the kinds of contact that younger adults would have had with older adults, which would ultimately end up predicting their attitudes towards older adults. We were unable to find a substantial role for the size of the home community in our data with the strongest predictive variable being the quality of contact that participants reported having with older adults

With respect to the gender of the younger adult some research has indicated that young men exhibit less favourable attitudes toward older adults and fewer positive behaviours than

young women (Allan & Johnson 2009; Benedict, 1999, Cherry & Palmore, 2008; Flamion et al., 2019). Our results replicate the finding that young men had less positive attitudes toward older adults than young women.

The younger adults had significantly more positive attitudes toward older females as compared to older males. This held true for both male and female participants from both rural and non-rural home communities. Some researchers have reported that older males are perceived more favourably than older females who tend to be subjected to more negative biases and prejudices (the "double standard") but research results are mixed with some studies finding no consistent effect of gender on attitudes toward older adults (Marques et al., 2020). Our results run contrary to both sets of findings in that older females were consistently rated more positively than older males by both young female and male adults from both rural and non-rural home communities. Perhaps young adults from NL have more positive attitudes toward older females and/or less positive attitudes toward older males than participants from elsewhere? This may be due, in part, to the higher quality of intergenerational contact with older women than with older men. Our results indicated that both male and female younger adults rated the quality of their contact higher for older females than older males. We also found that our younger adults had more frequent contact with older women than with older men. Further research is needed to clarify this older adult gender effect.

Previous research ((Kite et al. 2005; Cottle & Glover 2007, Lyons 2009) has reported that younger people do not have very positive attitudes toward older adults. However, our one sample t-tests indicated that female participants viewed both older males and older females positively with an average rating significantly above the neutral point. Surprisingly, male participants viewed older females more positively than the neutral point but not older males. Most communities in NL do not have large populations. It is possible that smaller populations may allow for more high quality intergenerational contact. Thus, while the rural vs. non-rural

measurements we used did not predict attitudes, coming from non-urban communities may be associated with more positive attitudes toward older adults.

The strongest predictor of attitudes toward older adults was the quality of contact with older adults. This replicates many of the findings reviewed in the Introduction (Marques et al. (2020, Allan and Johnson, 2009, Bousfield & Hutchinson, 2010, Knox et al., 1986; Schwartz & Simmons, 2001). In addition, if participants' close friends had high quality contact with older adults this was associated with more positive attitudes confirming the extended contact hypothesis and previous results (Aronson et al., 2016; Cameron, Rutland, Hossain, & Petley, 2011; Drury, Hutchison, & Abrams, 2016; Drury Eller, Abrams, & Gomez, 2012; Turner, Hewstone, Voci, & Vonofakou, 2008).

The quality of contact, for example, those that produce new friendships, appears to be a particularly powerful way of improving intergroup attitudes (e.g. Page-Gould, Mendoza-Denton, Alegre, & Siy, 2011). Increased cognitive overlap between the self and the outgroup is one of the main mechanisms through which intergroup attitudes are changed (e.g., Davies, Tropp, Aron, Pettigrew & Wright, 2011). Our findings are supportive of this overall mechanism: the strongest predictor of positive attitudes towards older adults is not the amount of contact, but rather the quality.

The one sample *t* tests suggested our young adults held moderately positive attitudes toward older adults with the exception of young males' attitudes toward older males. A follow-up study using the same modified RASD items and the same contact questions could assess young adults' attitudes towards younger females and younger males. The results would allow for a more direct comparison of young adults' attitudes toward younger adults as compared to older adults. Are young adults' attitudes toward younger adults more positive than their attitudes toward older adults? Previous research would suggest they are.

Although our prediction about the role of the size of home community on attitudes toward older adults was not supported, this is a promising finding regarding improving attitudes towards older adults and thereby reducing ageism. The size of the community that a person grows up in is not a target for intervention efforts to improve attitudes toward older adults in that home community size cannot be controlled. Rather, our findings suggest that across all different sizes of home communities, there are many different levels of quality of contact with older adults which may matter. The correlational nature of our work prevents us from being able to make causal claims, though the positive effects of intergroup contact have already been well documented in other work. Future intervention studies that are able to create positive, high quality intergroup contact between youth and older adults may be particularly effective.

Previous research suggests that interventions that create positive intergroup contact between older and younger adults (e.g. collaborating on music or video productions) may prove to be even more effective than other kinds of contact. New exemplars or positive contact experiences may then disproportionately change attitudes towards this group.

There are several limitations to the reported findings and their interpretations. Foremost is the relatively small number of rural young participants, particularly males (n=6). Part of the reason for the small number of rural males is that most of the participants came from psychology courses which typically have more female than male enrollments. Future research should endeavour to increase the number of young male participants. We attempted to do this in our third call for participants but were unsuccessful. Future research might target high school students in rural communities.

The current study helps to fill a knowledge gap in Canadian research by comparing the attitudes of younger adults -- who grew up in rural and non-rural communities -- towards older adults using data provided by participants mainly from NL. An evidence base for possible

negative attitudes/perceptions of older people is useful in guiding effective interventions

designed to improve attitudes toward older adults and will help to inform public policy related to

reducing ageism in NL and in Canada generally.

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List of **Appendices**

Appendix A: The survey

Appendix B: A comparison of mean attitudes toward older adults for all participants and for NL participants only.

Appendix C: Regression Analyses with Actual (Non-Log) Population.

Appendix A. The Attitudes toward Older Adults Qualtrics Survey

Title: Perceptions of Older Adults.

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You are invited to take part in a research project entitled "Perceptions of Older Adults." This form is part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. It also describes your right to withdraw from the study at any time. In order to decide whether you wish to participate in this research study, you should understand enough about its risks and benefits to be able to make an informed decision. This is the informed consent process. Take time to read this carefully and to understand the information given to you. Please contact the researcher, Dr. Daniel Nadolny (dnadolny@grenfell.mun.ca), if you have any questions about the study or for more information not included here before you consent. It is entirely up to you to decide whether to take part in this research. If you choose not to take part in this research or if you decide to withdraw from the research once it has started, there will be no negative consequences for you, now or in the future.

Purpose of study:
Given this province's aging demographics, it is important to understand how older adults are perceived. This study assesses your perceptions of typical older adults (ages 65 and above). It also assesses the quantity and quality of your interactions with older adults and the quality of your friends' interactions with older adults.   What you will do in this study:First you will be asked for some background information including your age and your home community, but not your name. You will then be asked to complete a standardized set of questions for assessing perceptions of and contact with older adults.   Length of time:This survey should take approximately 15 minutes to complete. Withdrawal from the study:You are able to stop your

participation in this study by closing the survey instead of submitting it, with no negative consequences. Only survey respondents who complete the survey will have their responses used. Once your survey has been submitted, we will be unable to remove your data from the study.

Possible benefits: All participants will be offered the opportunity to have their name entered into a draw for a $100 gift certificate from Amazon. You will have to give your name to be entered but your name will be kept separate from your responses to ensure your anonymity / confidentiality.

Possible risks: We don't anticipate this study having risks beyond what would be experienced in daily life. Completing this study requires reflecting on your attitudes towards older adults. If this raises any issues for you, you are able to contact Grenfell's Counselling and Psychological Services at cps@grenfell.mun.ca, 637-7919.

Anonymity, Confidentiality and Storage of Data. Your responses will be anonymous and confidential. Please do not include any identifying information in your responses to the questions. IP addresses will not be collected. All information will be analyzed and reported on a group basis. Thus, individual responses cannot be identified. We are not collecting any identifying information. The online survey company, Qualtrics, hosts the information on private Canadian servers. All information will also be held on a password protected computer during the duration of the project. Data will be retained for a minimum of five years as per Memorial University's Research Policy.

Reporting of Results: The results of this study may be submitted to peer-reviewed journals, and reports prepared for organizations such as the Harris Centre. Only aggregated data will be presented; individual responses will not appear separately. Sharing of Results with Participants:A summary of the results will be available by December 1, 2020. If you would like a copy of this summary, please contact Dr. Daniel Nadolny at dnadolny@grenfell.mun.ca.

Questions: You are welcome to ask questions at any time during your participation in this research. If you would like more information about this study, please contact: Dr. Daniel Nadolny at dnadolny@grenfell.mun.ca, or 709-639-4874. The proposal for this research has been reviewed by the Grenfell Campus-Research Ethics Board and found to be in compliance with Memorial University's ethics policy. If you have ethical concerns about the research (such as the way you have been treated or your rights as a participant), you may contact the Chairperson of the GC-REB through the Grenfell Research Office (GCREB@grenfell.mun.ca) or by calling (709) 639-2399. By clicking next, you are consenting to participate in this study.

First we will ask you for some basic demographic information.

What is your age in years?

_____

What is your gender?

_____

Q4 Please provide the name or names of the community or communities that you grew up in.

	Name of Community	Ages you resided in the community
Community 1		
Community 2		
Community 3		

What is your current level of education?

○ Less than high school

○ High school degree or equivalent

○ Undergraduate university/college begun or completed

○ Master's Degree begun or completed (e.g. M.A., M.Sc.)

Older men ratings

What follows is a list of opposite adjective pairs on a 6-point scale. Please click on the scale at the point that best represents your judgment about **older men (ages 65 and above)**.

Make your rating for each item a separate and independent judgment.

Don't be concerned about how you mark any of the previous items and don't worry or puzzle over individual items.

It is your first impression or immediate feeling about older men in general that is most important. Please be sure to select a point on the scale for each adjective pair.

Please click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Pleasant	○	○	○	○	○	○	Unpleasant

Please click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Friendly	○	○	○	○	○	○	Unfriendly

Q9 Please click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Cruel	○	○	○	○	○	○	Kind

Please click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Sweet	○	○	○	○	○	○	Sour

Q11 Please click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Mean	○	○	○	○	○	○	Nice

Please click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Intolerant	○	○	○	○	○	○	Tolerant

Please click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Cooperative	○	○	○	○	○	○	Uncooperative

Please click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Unfair	○	○	○	○	○	○	Fair

Pease click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Ungrateful	○	○	○	○	○	○	Grateful

Please click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Unselfish	○	○	○	○	○	○	Selfish

Please click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Considerate	○	○	○	○	○	○	Inconsiderate

Please click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Patient	○	○	○	○	○	○	Impatient

Please click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Negative	○	○	○	○	○	○	Positive

Please click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Agitated	○	○	○	○	○	○	Calm

Please click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Thoughtful	○	○	○	○	○	○	Thoughtless

Please click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Humble	○	○	○	○	○	○	Arrogant

Please click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Frugal	○	○	○	○	○	○	Generous

Please click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Flexible	○	○	○	○	○	○	Inflexible

Please click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Good	○	○	○	○	○	○	Bad

Please click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Despairing	○	○	○	○	○	○	Hopeful

Please click on the first point on the scale below, to show that you're paying attention (not every one does)

	1	2	3	4	5	6	
First Point	○	○	○	○	○	○	Last Point

Please click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Pessimistic	○	○	○	○	○	○	Optimistic

Please click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Suspicious	○	○	○	○	○	○	Trustful

Please click a point on the scale that best represents your judgment about older men (ages 65 and above)

	1	2	3	4	5	6	
Safe							Dangerous
	○	○	○	○	○	○	

How many older men were you thinking of when doing these ratings?

○ 1

○ 2

○ 3

○ 4

○ More than 4

	Daily	Weekly	Monthly	Yearly	Almost Never
How often do you have contact with older men (ages 65 years and above)?	○	○	○	○	○

Please enter the number of older men that you have contact with:

_____

Please rate the *quality* of your previous contact with older men.

1   2   3   4   5

Pleasant ○ ○ ○ ○ ○ Unpleasant

Voluntary ○ ○ ○ ○ ○ Involuntary

Bad Quality ○ ○ ○ ○ ○ Good Quality

Please indicate how many of your close friends have positive relationships with older men.

	1	2	3	4	5	
None at all	○	○	○	○	○	Very Many

Please indicate how many of your close friends have negative relationships with older men.

	1	2	3	4	5	
None at all	○	○	○	○	○	Very Many

End of older male adults block

Older Female ratings

What follows is a list of opposite adjective pairs on a 6-point scale. Please click on the scale at the point that best represents your judgment about older women (ages 65 and above).
Make your rating for each item a separate and independent judgment.
Don't be concerned about how you mark any of the previous items and don't worry or puzzle over individual items.
It is your first impression or immediate feeling about older women in general that is most important. Please be sure to select a point on the scale for each adjective pair.

Thank you for your participation. If you are a student in a participating psychology class, or are entering the draw you can leave your student number or email address here for course credit or to enter the draw.

Note: **If you are a Grenfell Campus Psychology student, please click this link to enter your student number for course credit**: <u>Link for Course Credit - GRENFELL STUDENTS ONLY</u>

 (Please note that this link will open in a new window so ensure that you do not have pop-ups blocked.)

Comment: The same bipolar adjectives used for older males and other questions including contact questions were repeated in the same order with "older females" substituted for "older males". Some of the younger adult participants answered questions related to older males first then older males. Other participants answered questions related to older females first then older males. Which order a participant received was randomly determined.

Appendix B. A Comparison of Mean Attitudes towards Older adults for all Participants and for NL participants only.

***Figure 6*** *Mean Attitudes towards Older Adults for all Participants*
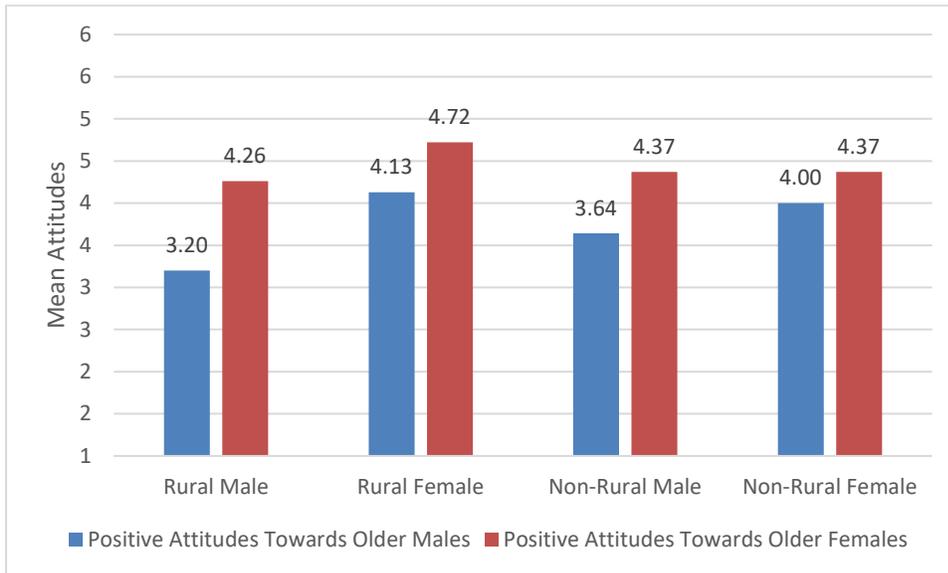
Figure 7 Mean Attitudes towards Older Adults for NL Participants
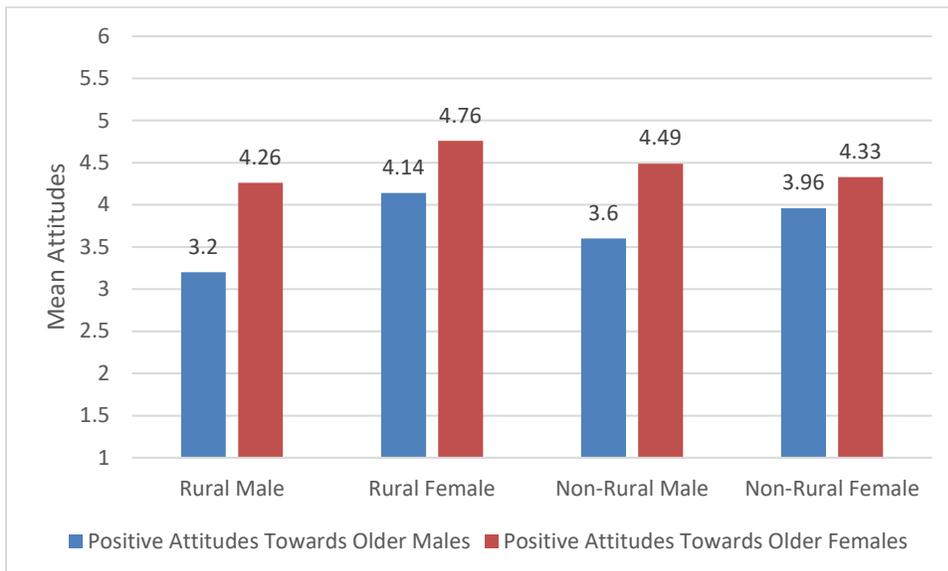
Appendix C. Regression Analyses with Actual (Non-Log) Population.

Pearson Correlations for Frequency and Quality of Intergenerational Contact data for Older Men

Variable	Number of Exemplars	Frequency of Contact	Quality of Contact	Positive Attitudes	Population
Number of Exemplars	—				
Frequency of Contact	-0.105(0.119)	—			
Quality of Contact	0.039(0.561)	**-0.134(0.038)**	—		
Positive Attitudes	0.128(0.054)	**-0.188(0.003)**	**0.668(<.001)**	—	
Population Of Home Community	-0.032(0.644)	0.118(0.082)	-0.026(0.705)	-0.093(0.158)	—

Note. Format is Correlation (p-value). Statistically significant results (p < .05) are bolded. Exemplars refers to number of older men, participants were thinking of when doing the ratings.

Coefficients for Regression Predicting Attitudes Towards Older Men With Non-log Population

	Unstandardized	Standard Error	Standardized	t	p	95% CI Lower	95% CI Upper
(Intercept)	3.934	0.052		75.172	5.22e -147	3.797	4.054
Population of Home Community	-2.927e -7	2.624e -7	-0.060	-1.116	0.266	3.831	4.037
Number of Older Men Contacts	0.001	6.986e -4	0.096	1.792	0.075	-8.10e -7	2.247e -7
Frequency of Contact	-0.075	0.049	-0.083	-1.521	0.130	-1.26e -4	0.003
Quality of Contact	0.622	0.054	0.625	11.533	7.55e -24	-0.171	0.022

ANOVA

Model	Sum of Squares	df	Mean Square	F	p
Regression	74.940	4	18.735	38.241	1.154e -23
Residual	96.513	197	0.490		
Total	171.452	201			

Note. The intercept model is omitted, as no meaningful information can be shown.

The model predicted a significant portion of variance in attitudes towards older men, $F_{(4,197)} = 38.241$, $p < .001$, $R^2 = .426$. Although the voluntary nature of contact with older men was also a significant unique predictor, the majority of the predictive ability of our model came from the quality of contact participants reported with older men.

Pearson's Correlations – All variables for Questions Concerning Older Women

Variable	Number of Exemplars	Frequency of Contact	Quality of Contact	Positive Attitudes	Population
Number of Exemplars	—				
Frequency of Contact	-0.080(0.241)	—			
Quality of Contact	0.033(0.625)	-0.096(0.140)	—		
Positive Attitudes	0.095(0.157)	-0.115(0.075)	**0.658(<0.001)**	—	
Population of Home Community	-0.033(0.639)	**0.209(0.002)**	**-0.156(0.021)**	0.013(0.840)	—

Coefficients for Regression Predicting Attitudes Towards Older Females

	Unstandardized	Standard Error	Standardized	T	P	95% CI	
						Lower	Upper
(Intercept)	4.436	0.047		94.486	1.503e -163	4.343	4.528
Population of Home Community	-1.869e -7	2.396e -7	-0.044	-0.780	0.436	-6.595e -7	2.857e -7
Number of Exemplars	8.400e -4	6.143e -4	0.075	1.367	0.173	-3.717e -4	0.002
Frequency of Contact	-0.049	0.053	-0.052	-0.923	0.357	-0.154	0.056
Quality of Contact	0.615	0.054	0.627	11.288	1.503e -163	0.507	0.722

ANOVA

Model	Sum of Squares	df	Mean Square	F	p
Regression	54.614	4	13.653	35.683	2.640e -22
Residual	73.848	193	0.383		
Total	128.462	197			

Note. The intercept model is omitted, as no meaningful information can be shown.

The pattern of regression results for predicting attitudes towards older women were very similar to attitudes toward older males. Our model predicted a significant portion of variance in attitudes

towards older women, $F(4,193) = 35.68$, $p < .001$, $R^2 = .425$. The majority of the predictive ability of our model came from the quality of contact participants reported with older women.