# *The Attitudes of Young Adults About Older Drivers*

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***Birgit Huebscher***

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## Abstract

Many of the decisions made in our society are affected by the stereotypes people hold. In this research, the stereotypes that 239 students ($\underline{M}$ = 21.12) hold concerning older people in general, and as drivers specifically, are investigated. Also measured is the knowledge younger driver have about the aging process, older people in general, and the capabilities of older drivers. These stereotypes are important because they may influence how decisions on the road are made. For example, how young people share the highway with older drivers could affect highway safety. Whether these stereotypes are based on practical experience is also important, dictating how and when education interventions might be efficacious.

Contents

"Growing old is exactly like having a criminal record.

From now on every little thing counts against you."

This quotation characterizes the fears of many elderly people in our society, as many of them think this way about aging. This is a serious problem since, in the future; older people will comprise a larger part of our society. Due to better working and living conditions, better nutrition, better medical care, and a general decline in natural disasters, people have experienced a steady increase in life expectancy. In the past, only limited numbers of people experienced old age; however, over the last several decades, the absolute and relative number of elderly people has been growing. In Canada it is projected that the percentage of people 60 years and older will increase from 12.8% in 1980 to 23% in 2020 (Millar & Adams, 1991).

With an increase in life expectancy, the number of generations (cohorts) living in any given society increases also. Because different generations have dissimilar expectations about life, conflicts are unavoidable. For example, in the past, aging was viewed in a positive light — younger people associated wisdom with the elderly. By contrast, today, older people are associated with psychosocial breakdown and loss (Schneider, 1970). This bias against the aging process is called "Ageism" (Butler, 1969). It is found in every sector of society including government, medicine, education, and organized religion. The media also presents a negative perception of aging — our speech and language, as well, are often biased against older adults. Furthermore, stereotypes can be found in social policies as evidenced by policies concerning mandatory retirement. People from younger age groups tend to decide what is best for the older generations. Stated another way, older people are often left out of the decision-making process and

their independence is taken away without their permission — this action is called "Paternalism" (Mill, 1956). Paternalism involves such actions where one person tends to make decisions for another person's own good, forgetting that this person's autonomy can be restricted through this action. Beauchamp and Childress (1989) pointed out that paternalistic acts involve the overriding of a person's wishes or intentional action to produce benefit or avoid and/or prevent harm to that person. In contrast, Mill (1973), in his book On Liberty, mentioned that every person should have the freedom to develop their potential if this does not interfere with the freedom of another person.

Independence in the late twentieth century generally requires access to an automobile. During the last two centuries, Canadian society has experienced rapid technological, cultural, and social change due to the exponential rate of industrialization. All facets of life are becoming technically organized with the goal to be faster, better, and more technically efficient and competent. The need to get around or have access to transportation is becoming increasingly important for all generations.

Transportation has been identified as a major social problem since lack of appropriate transportation has been found to have a negative impact on a person's well-being and overall level of adaptive functioning (Matthews, 1982). Because many older adults regard driving as critical to maintaining their independence, loss of the right to drive is a blow to their self-esteem and self-image. Transportation provides access to basic activities, including shopping, adult day care, and health facilities, as well as social, work, recreational, and community activities. Not surprisingly, American census information has found that people over the age of 60 years rely on private vehicles for more of their transportation needs than persons aged 16 to 60 (Tuokko, Tallman, Beattie,

Cooper, & Weir, 1995). Especially in Northern Ontario where distances are great and public transportation is not always available, a driver's license and access to a car could be critical for independent living.

Society is trying to find ways to make driving safer for the older driver and the people around them. This is necessary given that the numbers of older drivers, and the ages at which people stop driving, are increasing; as well, more and more older people own their own vehicles (Schlag, 1993). For example,

> Prior to the fall of 1996, drivers reaching their 80th birthday completed an annual vision test, a knowledge test and a **road test** to retain their driving privilege. This program changed on October 28, 1996. ... Under the new system, senior drivers must complete a vision test and a knowledge test and will take part in a group education session. A small number of drivers will be asked to take a road test to have their in-car skills assessed (Ontario Ministry of Transportation, 1996).

According to this new regulation, the Ontario Ministry of Transportation wants to identify older high-risk drivers in order to make driving safe for everybody. But does this new policy really identify higher-risk drivers? It is obvious that the new policy fights against negative stereotypes by changing the policy of taking a mandatory road test at the age of 80 to a group-education session. However, who decides which older person is at higher risk or puts others at risk? Since professionals from the Ontario Ministry of Transportation decide which older person is still able to drive and which is not, this policy could be identified as an example of paternalism.

The theory part of this paper will explain that the age of the decision-making person behind this policy could be someone who believes certain negative stereotypes

about older drivers. As mentioned before, many of the decisions made in our society are influenced by negative stereotypes of older persons. For example, an older decision-maker might have a less biased opinion of an older person's driving ability because he or she holds fewer stereotypes about aging than a younger person does. Comparing this new policy with driving policies in European countries, one realizes that Canada is far away from an ageism-free policy. For instance, in Germany, retesting older people is not mandatory. Everyone in the society has the same right to drive; however, if involved in an accident, the driver at fault will be assessed, regardless of his or her age.

Additionally, as driving is important to maintaining one's independence, driving is also an ethical issue. In 1985 the Canadian Charter of Rights and Freedoms stated that, "every individual is equal before and under the law and has the right to equal protection and equal benefit of the law without discrimination and, in particular, without discrimination based on race, national or ethnic origin, religion, sex, age or mental or physical disability" (p. 21). Consequently, people from every age group have equal rights and policies like these should not be based on age alone.

As mentioned earlier, policies often "override a person's wishes or intentional action to produce benefit or to avoid and/or prevent harm to that person" (Beauchamp & Childress, 1989). Paternalism in this case is not just a sociological issue, but also an ethical one, as the autonomy of a person can be restricted through a policy like this.

This paper addresses the following questions: What stereotypes do younger drivers hold toward elderly drivers? Additionally, what do younger drivers really know about older people's driving abilities? Recognizing that knowledge decreases stereotyping (Harris, 1975), the attitudes of younger drivers can best be influenced by

educating them about older people's driving abilities. This way young drivers will better understand older driver's needs. Furthermore, attitudes can influence behavior toward the older generation (Olson & Zanna, 1993; Tesser & Schaffer, 1990). Positive attitudes, therefore, will make driving safer for everyone without taking away anyone's independence.

In order to explore the aforementioned ideas, this paper is divided into three parts: theory, research, and recommendations. The theoretical material examines several aspects of aging, such as problems between different age groups (generations), and theories of stereotyping. Most of the research done in the field of stereotyping is at least 20 years old; however, these theories are still very useful. This paper also examines traffic/driving statistics, which identify false beliefs held about older drivers. Additionally, the theoretical aspect presents an overview of the psychomotor abilities of older drivers, identifies the changes that occur in later life, and comments on the impact of these changes on the older driver.

In order to identify and study various attitudes related to older drivers, 194 questionnaires were distributed to Laurentian University students and 46 to Cambrian College students. The present research analyses these questionnaires. The last section of this paper determines a number of possible solutions to the problems associated with older people's driving. The most important proposal involves changing the attitudes of younger drivers toward older drivers so that driving is made safer for all age groups.

## Theoretical Background

### Generations and Intergenerational Conflicts

The term "generation" is derived from the Greek term "genasthai" meaning "to come into existence." In other words, the idea of generation comes from the reality that, in every society, special sub-groups exist. These sub-groups have similar experiences and are, therefore, called generations. A generation of people entails sharing a sense of equality with other members in the group while possessing differences relative to another group. For instance, German people in their 80s today all share the same history, having lived through two world wars, and this history has influenced their personalities. Also, it is very clear that they have different expectations of life than younger people.

These two ideas — equality and difference — are generally regarded to be the components that define the term "generation" (Merker, 1973). Historically, the similarity of impressions and experiences collected in a certain time period connects a group of people in a historical setting. Sociologically, generations act as aggregates of an age group which is different from other age groups in behavior.

Within any society, generations involve two levels (Dunham & Bengtson, 1986). The Macro level includes individuals who have experienced equal historical or developmental events; they are called cohorts. Stated another way, cohorts can be understood as people who are born during the same period of time (5 to 10 years) and during certain historical events. The Micro level refers to generations within one family and the generational relations between the grandparents, parents, and children.

Bengtson and Black (1973) presented six important points concerning the idea of generations:

- In order to understand social and interpersonal generational relations, a larger social structure is necessary. Hence, intergenerational relations within a family are important for generational relations within a larger context such as the society.
- Attributes resulting from individual development have a strong influence on generational relations. Consequently, every member develops individually and brings his or her own experiences into the relationship.
- Generational relations must be viewed as developmental phenomena in that cultural changes and individual development take place within a generation. Thus, generation is a constantly changing entity.
- Social relations entail bilateral negotiations in which both generations represent their own interests within the relation and are active members of the relationship.
- The Socialization process can be best understood as interactional confrontation between developing individuals. This interaction includes intergenerational solidarity and, on the other hand, intergenerational differences.
- Sociocultural changes result from confrontations (conflicts) between generations and solidarity within generations.

The aforementioned points reveal that every person within a relationship takes an active part and influences the direction of the development of this relationship. Just as relationships exist between interacting individuals, family relations also include interaction. Every member in the family has certain social roles, roles determined by the

family. The norms observed by the family depend on institutions outside the family, such as religion or government and on internal transactions between family members.

Different factors influence the quality of any relationship. First of all, the constraints under which the relationship develops, including a senior's decision to be a part of a relationship, have a strong influence on the relationship. Furthermore, the exchange of emotions, experiences, and concerns are important to the development of a qualitatively good relationship. Intergenerational exchange is characterized by continuous exchange in political, social, and educational areas. It is very important to acknowledge everyone's concerns in a relationship. Reciprocity is essential in a relationship. Moreover, the experience of affiliation (membership) and a person's decision about when to get or to give help in stressful situations characterize a good relationship. Stressful situations, such as a decline in health, reduced income, the onset of disability, loss of spouse, or difficulty in obtaining transportation, can limit opportunities for maintaining old relationships and/or developing new ones.

Today, one-third of all persons 65 years of age and older have at least one grandchild, and one-quarter of persons 58 to 59 years of age have one or two living parents. One of the inevitable results of population longevity is the development of four- and even five-generation families. Research has disproved the myth of the ideal three-generational family of the past. In the future, there will be more aging families: grandparents in their eighties, parents in their sixties, and grandchildren in their forties (Brody, 1966).

Elderly people are the most heterogeneous group in society; they come from various ethnic backgrounds (Novak, 1995). Additionally, older people have lived

through many historical events and therefore have variable characteristics, including their fitness, health, and understanding of life and view of the past. Old age can best be understood in the context of an entire life-span, where cultural traditions, the strategies people have followed throughout their lives, and historical changes have affected people at various points in their lives.

Two of the most common themes of intergenerational relations are illustrated by the quotations "Inner nearness by outer distance" (Rosenmayr, 1983) and "Intimacy, but in distance" (Tartler, 1961). Both statements describe the support different generation's give each other, even though generations may live far apart. Additionally, a good relationship is defined not by the quantity of the contact persons have but rather by the quality of the contact. Relatives do not have to be together all the time in order to be able to support each another. They can support each other by calling regularly or by utilizing E-mail.

Stereotypes, Stereotyping, and Ageism

Regarding the issue of stereotypes, Ashmore and Del Boca (1976) are convinced that stereotypes can explain the dynamics of relationships between social groups. The most significant problems that elderly people encounter today are the negative social attitudes they must deal with on a daily basis. It may seem to the elderly person that, no matter what he or she as an individual achieves or what his or her abilities are, negative characteristics are associated with an elderly person because of his or her inclusion in a particular age bracket. Crocket, Press, and Osterkamp (1977) have found that, as a group, old people are perceived to be socially alienated, psychologically restricted, and

physically impaired. Furthermore, the older person's capacity to determine and control important events in his or her life, as well as in the lives of others, is judged by both older and younger individuals alike to have significant deficits.

In order to better understand the concept of stereotyping, McTavish (1971) differentiated between two dimensions in stereotyping of older people: society-level-studies and individual-level-studies. Society-level-studies looked at attitudes about older people influenced by society as a whole. In primitive societies, the views of older people were more positive; often people were considered to be a source of wisdom, to have knowledge of the past, and experience. With increasing industrialization, however, the status of older people has decreased, and younger people view them more negatively. Cowgill and Holmes (1972) called this picture "global," because it describes the attitude of the whole of society toward older people. In spite of its negativity, this view includes a "general" picture of older people, which remembers them in a more positive way from earlier years. Centuries ago, aged persons were rare, and old age was seldom achieved; consequently, people who reached old age were important for holding traditions and passing on knowledge (Tartler, 1961). At the same time, attitudes about the aged are shaped by psychophysical losses; the older person is connected with illness, disability, tiredness, slow thinking, forgetfulness, isolation, and unproductively (Lehr & Niederfranke, 1991).

In contrast, individual-level-studies concentrated on individual attitudes about the aged. Several factors played an important role in the development of the individual's attitudes (stereotypes): the perceiver's age, gender, education, and contact with the older generation (Lehr & Niederfranke, 1991). Research shows that younger respondents hold

a more negative view of an older person than older respondents do (Lehr, 1978). In several studies, better education is connected with more positive attitudes about the aged (Harris, 1975; Thorson, Whatley, & Hancock, 1974). Contact with older people or grandparents also result in positive attitudes about other people (Rosencranz & McNevin, 1969; Bekker & Taylor, 1966).

In order to better facilitate this idea of ageist stereotyping, several definitions need to be introduced. It should be mentioned here that the terms "attitudes" and "stereotypes" are used interchangeably by most of the researchers. Stereotypes, in general, are "pictures in the head" (Lippmann, 1922) in which ageism is a cliché reflecting the bias against the elderly. On a more specific level, Hamilton and Trolier described stereotypes as "a cognitive structure that contains the perceiver's knowledge, beliefs, and expectations about a human group" (1986, p. 133). McCauley, Stitt and Segal (1980) defined stereotypes as "those generalizations about a class of people that distinguish them from others" (p. 197). Most of these definitions are limited because they focus solely on the negative aspect of stereotyping. However, even when stereotypes are positive, they still involve a generalization about a class of people.

Allport (1971) concluded that stereotypes are simplified ways of thinking, which occur in a black-and white scheme and which become more differentiated as people age. Furthermore, Lehr (1978) found a connection between age and the level of negativity of stereotypes; younger participants held a more negative view toward older people than older participants did.

Because people have a limited capacity to recognize and to store individual cases, they simplify complexities through categorization (Fiske & Neuberg, 1990).

Stereotyping is a form of categorization (see Figure 1). For example, people often judge others on the basis of their color or because of their membership in a certain group; they do not realize that every person is an individual. Furthermore, through stereotyping one tends to act paternalistic when restricting someone's autonomy or by making decisions for another person or by "wanting others to be like themselves" (Mill, 1956). Categorization, as the process of stereotyping, leads to the restriction of a person's autonomy, because this person will be put into a certain category and will be looked at as a member of a group, but not as an individual. The perceiver decides for this person which group he or she should belong to and the person has no involvement in the decision. It is, therefore, possible to expend Fiske and Neuberg's model by including Paternalism in the figure.

The following Figure 1 demonstrates the process of creating and ascribing to stereotypes.

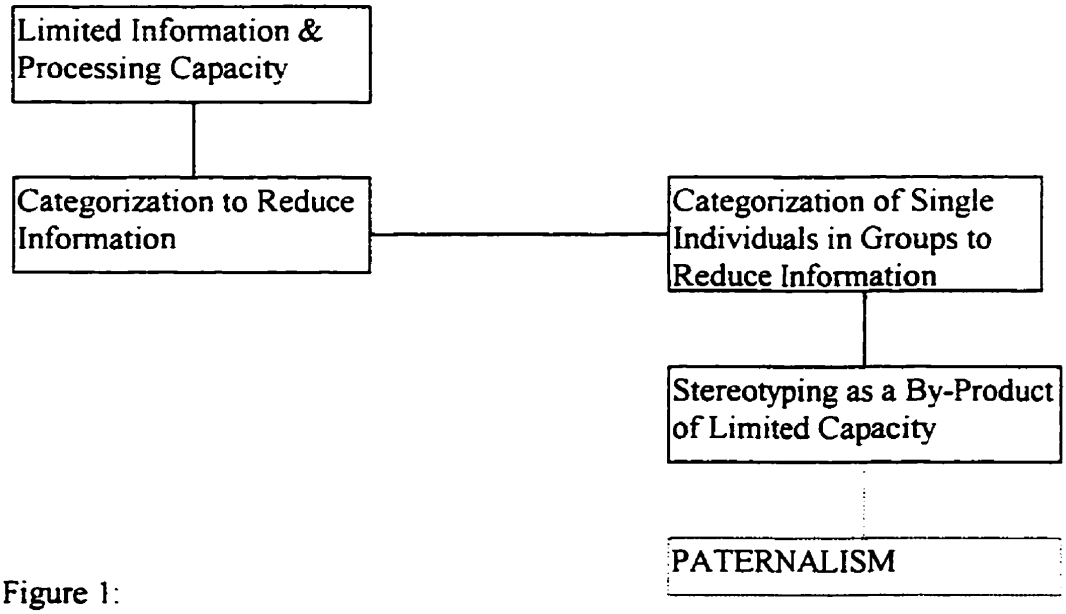


Figure 1:

Cognitive Model on Stereotyping (In Fiske & Neuberg, 1990)

Butler (1975) was the first scientist to use the term "ageism." He mentioned that ageism is just another form of "ism" such as racism and sexism. He defined ageism as an aversion, hatred and prejudice toward the aged and their manifestations in the form of discrimination on the basis of age. However, ageism is somewhat different from the other two forms of "ism," because it is a negative stereotype ultimately directed toward oneself (i.e., when the person reaches old age). It can be avoided only through death (Braithwaite, 1996). In a 1980 article, Butler described three distinguishable but interrelated aspects of ageism. The first aspect includes prejudicial attitudes about the aged, old age, and the aging process. The second aspect entails discriminatory practices against the elderly, while the last aspect involves institutional practices and policies that perpetuate stereotypic beliefs.

Ageism is also a serious ethical issue (MacDougall, 1988). For instance, many older people are discriminated because of their age (i.e., driving policy). Society, therefore, puts a restriction of choice on older people because of their age, so they need to be retested at a certain age. From a human rights' perspective, people should be able to choose for themselves at what age they want to quit driving. Schafer (1988) pointed out that every adult is mentally competent to make decisions and has the right to make mistakes and foolish decisions. However, it should be the individuals to decide when to quit driving even if the individual puts him or herself in danger, unless he or she proves dangerous, e.g., have an accident.

The Manitoba Human Rights Commission (1982) concluded that

> The whole essence of human rights philosophy is that a person be treated as an individual and not considered necessarily to exhibit the same behavior or attitude as other members within his or her identifiable group ... in short the emphasis should be on accepting the reality of individual differences and the freedom of the individual to make a choice (p. 170).

Katz (1976) and Goodman (1964) pointed out that children's prejudices develop in three sequential phases. The first phase involves awareness of intergroup differences and begins when the child is able to differentiate group members from non-members. The second phase is intergroup orientation. The child evaluates group members according to characteristics such as color of the skin, height, hairstyle, and figure. The third phase, called attitude consideration, includes greater differentiation, elaboration, and integration of beliefs, feelings, and social behavior. This phase marks the beginning of the child's prejudice toward other people.

Sherman (1996) mentioned that recent research on this mental representation has been influenced by the distinction between abstract and exemplar-based knowledge. In his definition, abstract knowledge includes anything people learn. On the other hand, exemplar-based knowledge describes anything people learn from watching other people. His results showed that exemplar-based knowledge decreased stereotyping as target experience (experience with a person from a different group) increased. This may indicate that stereotypes are less likely to be attached to people we know and to something we hear or read. However, when relevant abstract stereotypes exist, they form the basis for stereotyping independent of stored exemplars. In order to simplify thoughts

and knowledge, a person uses stereotypes to help to categorize things and minimize what he or she has to know. This categorization process in stereotyping can help to increase cognitive efficiency and structure everyday situations for individuals.

Devine (1989) argued for a two-stage model of prejudice in which the perceptual phase is automatic, meaning that stereotypes are activated by seeing the target person. The second phase of prejudicial behavior is a matter of conscious choice, based on one's relevant values. In contrast, other researchers have concluded that thinking about the reasons for someone's attitudes may bring the person to change his or her attitude about the object (Tesser & Schaffer, 1990).

Another model assumes that stereotypes are cognitive representations or structures that link descriptive attributes to a group (Dovidio, Evans, & Tyler, 1986). Ford and Stangor (1992) discussed the possibility that in some cases stereotyping is used to differentiate between groups. The resulting stereotypes may differ according to which other groups are used as reference points.

Stereotypes can also influence how we interpret the behavior of others, what we remember about other people, and how we behave toward them (Ford & Stangor, 1992). Additionally, stereotypes can describe the relation between social groups and can be used to understand intergroup relations. Brewer (1979) argued that in-groups (someone's own group) are rated more positively than out-groups (another group). Bekker and Taylor (1966) and Brubaker and Powers (1976) pointed out that direct contact with the older generation results in a more positive picture of it. Contact with grandparents often results in rejection of negative stereotypes about old age (Bekker & Taylor, 1966). Brubaker and Powers (1976) suggested a self-describing process within stereotyping such

that the chronological age of a person has nothing to do with the person's self-description of being old. Instead, events such as bad health, low income, retirement, loss of a spouse, and suspension of driving privileges contribute to seeing oneself as old. Accepting negative stereotypes about older people can affect the older person's view of him or herself and therefore produce a negative self-concept. For example, an older person who has to be retested in a driver's program at age of 80 may choose to define him or herself as old because of the experience. At the same time, a person may compare his or her driving ability with that of other 80-year-old drivers. This comparison also influences the person's subjective self-definition as old. The attitude one has toward one's own driving plays an important role in one's experience as a driver and may result in negative or positive stereotypes depending on one's positive or negative self-concept.

Using an attitude scale, Isaacs and Bearison (1986) studied age stereotyping in four-year-old, six-year-old, and eight-year-old children. Their results indicated significant levels of prejudice among six and eight-year-olds but not in four-year-olds. Furthermore, eight-year-old children were found to hold more prejudicial views than six-year-olds. This finding supports the view that prejudice increases with age. Hummert (1993) found that, in comparison with the elderly, young adults are much less likely to associate older ages with positive stereotypes but tend to associate negative stereotypes with the older age ranges.

In Heckhausen, Dixon, and Baltes' research (1989), elderly people had more complex conceptions of the developmental process than did younger adults. The description of one's own group is often more complex and differentiated because the perceiver must come to terms with a larger collection of different examples involving

people in the perceiver's own group ("Polarization Hypothesis"; in Linville & Jones, 1980). Additionally, more positive stereotypes are found when a within-group — rather than a between-group — comparison is made. More specifically, when this occurs general groups, rather than specific individuals, are judged, when respondents are younger, and when clustered measures, rather than multifarious ones, are employed (Luszcz, 1986).

Braithwaite, Gibson and Holman (1985) found evidence of both positive and negative stereotyping among elderly people's views of themselves. In their research, an identified positive characteristic of older people was that they are more responsible and concerned than younger people are. This research suggests that young and old people not be evaluated by the same criteria. For example, Braithwaite, et al. (1985) also found that older people are more competent in finishing a task than younger people are. They concluded that although certain stereotypes are linked to aging, the specific actions of the individual determine if he or she will be linked to a stereotype or judged on a personal basis. Age represents only one of many characteristics possessed by an individual. Additionally, Braithwaite's data (1996) showed that fear of aging is related to negative attitudes about elderly people. He also mentioned that older respondents have a more positive view of elderly people and of the aging process than younger people do. Moreover, female respondents of all ages were more likely to express a positive attitude about the elderly than male respondents.

Additionally, Braithwaite (1996) concluded that a positive attitude about elderly people and to the aging process accompanied frequent contact with the elderly. These

positive stereotypes are not related to the frequency of contacts but rather to the quality of the contact (Green, 1981; in Braithwaite, 1996).

As previously noted, the picture of aging was more positive in the past; it centered on the wisdom of the elderly (Oswald, 1991). With increasing industrialization, however, society's picture of the elderly has become more negative. This is because the main role of an individual is to work, and older people are withdrawn from their work at the age of 65. They are, therefore, considered "useless" to society ("Modernization Theory," Cowgill & Holmes, 1972). This idea is evident in the attitudes that younger people hold toward older people. Attitudes of the young toward the elderly can arise from physical characteristics (e.g., slow, feeble, tired, deaf, dependent, crippled, and disabled), social characteristics (e.g., retired, forgotten, nothing to do, dignified, trapped, senior citizen, and mobile home park), and psychological characteristics (e.g., nice, friendly, anxious, confused, mean, grouchy, frightening, senile, and intolerant).

These diverse stereotypes can have a strong influence on the elderly. This diversity appears in age-determined attitudes about drivers. Who has not heard comments like "old people drive too slow"? Nelson, Evelyn, and Taylor (1993) tested 127 younger and 108 older drivers who voluntarily registered in driver's education courses and completed questionnaires about attitudes and behaviors pertinent to safe driving. The data showed that younger drivers viewed older drivers as overly cautious, as too slow to act, and as likely to cause accidents. Meanwhile, older drivers characterized younger drivers as lacking in courtesy and safe-driving practices, as well as being overly aggressive. They rated other older drivers as cautious, courteous, and aware of age-related limitations. These findings indicate that each age group seems to have a negative

view of the other age group's driving practices. One can therefore describe age stereotyping as bi-directional.

One of the most used scales for measuring perceptions of elderly people was developed by Tuckman and Lorge in 1953. This scale consists of a series of polar adjectives (i.e., productive-unproductive) on a seven-point scale. Many researchers have criticized the scale because it does not distinguish between factually based beliefs and negative attitudes about the elderly (Kogan, 1979; Brubaker & Powers, 1976). Therefore, a high score could indicate dislike for elderly people, or it could show the level of knowledge that people have about older persons' restrictions. Consequently, when using this scale, the researcher has to identify whether or not the stereotypes of the participants are based on direct knowledge of elderly people.

Interestingly, the people who play a pivotal role in age stereotyping are not just the elderly but also younger groups of people who determine the social status of older persons through policy-making. These people establish and implement laws and can take their prejudices to the next level: from passive to more active forms of prejudice. However, ageism does not just impact on elderly people through prejudiced treatment by society; ageism also results from self-fulfilling prophecies (Rodin & Langer, 1980). Allport (1954) concluded, "in all human relations - familial, Ethnic, international - the engendering power of expectancy is enormous. If we foresee evil in our fellow man, we tend to provoke it; if good, we elicit it" (p. 156).

For example, most elderly drivers know about society's negative stereotypes toward them (i.e., that they are seen as bad drivers) and thus, within difficult driving situations, elderly drivers may become nervous and not trust their abilities. Due to

excitement, the older person may behave in a way younger people expect — being unsafe on the road.

As mentioned earlier, ageism also involves paternalism. Today, younger generations often override an older person's wishes because they assume that the older person is not able to make the right decision. Dworkin (1972) identified two forms of paternalistic actions. First, pure paternalism, where the class of persons whose freedom is restricted is identical with the class of persons whose benefit is intended to be promoted by such restrictions. Second, impure paternalism, where laws are passed that try to protect the welfare of a class of persons by restricting the freedom of other persons besides those who are benefited. Looking at the new drivers retesting policy, one can recognize that both forms of paternalism could be involved in this policy. Since older people are more involved in car accidents per kilometers driven, the Ontario Ministry, intended to make the older generation's mobility safer by removing licenses from those who seem to have problems on the road. Not just older drivers were to be protected from possible car accidents, but also other road users had to be "protected" from dangerous older drivers.

Some authors have suggested that stereotypes can predict behavior (Ford & Stangor, 1992; Butler, 1980; Katz, 1976). For example, the third aspect of ageism mentioned by Butler described institutional practices and policies that perpetuated stereotypic beliefs. Butler explained that stereotypic beliefs affect policy-making. Additionally, in Katz (1976) and Goodman (1964), the last phase (called attitude consideration) of sequential phases of prejudice development included greater differentiation, elaboration, and integration of social behavior. Finally, Ford and Stangor

(1992) mentioned that stereotypes could also influence how we behave toward other people. Stereotypes, therefore, may not only influence what people think about a certain group but also how they behave and act toward people?

Stereotypes about elderly drivers do not accurately predict their behavior. While at times young adults focus on the level of skill erosion of the elderly driver, the stereotype that some elderly drivers are not as competent as drivers of other age groups is empirically not founded (Hills & Burg, 1977). At the same time, although the level of decline is not nearly as great as many of us perceive, there is still a decline. While drivers 65 years of age and older do not get into the greatest number of accidents, they do have the highest crash rate per kilometer driven compared to other age groups (Ministry of Transportation, 1995). Given this statistic, the next section introduces the reader to traffic statistics that provide background and explanations of these problems in a wider context.

Traffic and Driving Statistics

One of the major symbols of adulthood and of competency is attaining one's driver's license. The ability to drive wards off many of the negative realities of old age and helps a person maintain his or her social roles and level of participation in society (Eisenhandler, 1990). Without it, the elderly are somehow excluded from a competent and able society. In addition to recognizing its symbolic value, Persson (1993) has identified driving as one of the most important activities in maintaining one's independence. He noted that society identifies the driver as a functioning and socially capable adult. A driver's license provides social structure (e.g., increases the

expectations others have about drivers and provides appropriate activity) and allows the individual to judge him or herself and his or her behavior as opposed to being categorized on the basis of age alone.

Mobility is critical to an individual's independence and overall quality of life. The isolation imposed by restricted mobility can have a dramatic impact on a person's mental and spiritual well being. The prerogative of driving gives the elderly many of the privileges offered to younger adults and allows them to maintain a non-age-related identity (Eisenhandler, 1990). It represents not only convenient transportation and independence but symbolizes autonomy and competence. As one older person put it, "I can barely see, hear and walk. Things could be worse though. At least I can still drive" (Persson, 1993). The older adult does not automatically link him or herself to old age unless an incident, such as losing driving privileges, forces people to consider age a problem. Age becomes salient only when it takes on the power to offer or eliminate roles and privileges.

Millar and Adams (1991) stated that "in 1987, Canadians reported 1.7 million motor vehicle/traffic accidents" (p. 13). In 1989, 70% of Canadians 55 years and older, were licensed to drive (MacDonald, 1989). Car accidents are identified as a major cause of death, financial cost, and personal suffering. They also have far-reaching consequences on quality of life and health-care costs on the country. Among the public, these facts should lead to an increased awareness of the importance of driving. Statistics show that the claim that older drivers are often involved in car accidents is not true. Older drivers are less involved in accidents than younger drivers are. With increasing age, the proportion of people who experience an accident decline (Millar & Adams,

1991). Millar and Adams (1991) compared accident rates (motor vehicle/traffic, work related, sports related, and home and surroundings) to working status. The results showed that retired men have the lowest accident rate when compared to working men and students (181 accidents per 1,000 in 1987). However, retired women have the highest accident rate of all women (291 accidents per 1,000). In general, among seniors age 65 and over, 70% of accidents involved women. The same group of researchers pointed out that "of all motor vehicle accidents, 45% occurred to people under age 25. Thirty-one percent of all motor vehicle accidents involved men aged 15-24" (Millar & Adams, 1991, p. 13). Additionally, Millar and Adams came to the conclusion that "adolescents and young adults are at higher risk than their elders for accidents of all types" (1991, p. 23). Furthermore, people from upper income groups tend to have a higher incidence of motor vehicle accidents. Finally, divorced and separated persons, as well as widows and widowers, have lower accident rates than single and married persons.

Involvement in an accident, regardless of fault, is an indicator of future accident likelihood (American Association of Retired Persons, 1992). A Finnish accident study based on the period 1984 to 1990 (Hakamies-Blomqvist, 1994), indicated that older female drivers represent a minor part of the total driver population in industrialized countries, but they are the fastest growing driving segment. In 1970, the USA had 2.9 million female drivers 65 years of age and over. In 1990, this number increased to 10.8 million. Younger women in industrialized countries now become licensed almost as frequently as men. This growth is expected to continue over the next decade. Consequently, elderly female drivers can be expected to be involved in a larger number of accidents.

Men and women differ in terms of their traffic behavior and traffic accidents. First of all, the rate of severe accidents is higher for men than for women in relation to the number of licensed drivers and kilometers traveled (Evans, 1990). The reason for this may be that men adapt more risk-taking behaviors, such as driving at higher speeds and driving while intoxicated. The longer a male driver drives without an accident, the less likely he is to have one. In contrast, the likelihood of females being involved in an accident is independent of the time period from involvement in an accident. For women, but not for men, the age of becoming licensed is positively related to the risk of having an accident (Mannering, 1993).

In the same research by Hakamies-Blomqvist (1994), males and females aged 55 and over showed the same percentage of intoxicated drivers. On the other hand, among younger drivers, males were more prone to driving while intoxicated. The negative effect of alcohol on driving has been investigated in many studies (Campbell, Bush, & Hale, 1993; Skegg, Richards, & Doll, 1979).

However, less attention has been given to the effects of drugs on poor driving performance. Skegg, Richards, and Doll (1979) found a significant relationship between the use of minor tranquilizers and road accidents. Nevertheless, they also mentioned that subjects might have been at greater risk if they had not been given the tranquilizers. Older people were more likely to use hypnotic drugs (Carskadon & Dement, 1981) than younger people were. Furthermore, Carskadon and Dement mentioned that poorer sleep quality occurred in almost one-third of healthy people over the age of 60. Other authors have proved that people with untreated sleeping problems display poorer driving performance and have two to three times more accidents than those without sleeping

problems (Findlay, Levinson, & Bonnie, 1992; Stradling, 1989). In addition, in research by Findlay et al. (1992), one-quarter of the patients with untreated sleeping problems reported frequently falling asleep while driving. Subjects who were treated for tiredness improved their driving performance to levels comparable to a control group.

Within the whole population, female drivers are more often at fault in collisions, while male drivers have a larger portion of single car accidents. This difference disappears with age. Among males and females age 65 and older, 15% involve single accidents and 80% involve at-fault accidents. Hakamies-Blomqvist (1994) found attention problems were the leading cause of accidents for women. As driving experiences are greater for males than for females (total mileage, yearly mileage, and quality of driving experiences), men typically have a higher level of driving skill. Conclusively, sex differences in driving habits are the greatest among younger groups and may, therefore, be socially determined and cohort-related.

Research shows a relationship between age-related visual decline and increased accident rates among older drivers (MacDonald, 1989). The accident rate per kilometer is higher for older drivers than for younger drivers. Older drivers are more likely to participate in accidents involving failure to heed signs, to give right of way, or to turn appropriately. Older drivers are involved in fewer single-vehicle accidents and in more two-vehicle accidents (Campbell, 1966), and are more likely to be injured or killed in an accident than younger drivers (Mackay, 1988).

Older people drive fewer kilometers annually, but these numbers are expected to increase. In the future, more families will be separated because of employment factors. This separation will affect the driving behaviors of older people, too, because they will

have to travel longer distances in order to visit their children. On the other hand, in days to come, older cohorts will be more familiar with or experienced at driving, even within the female population, and this will also influence the distance they drive. Presently, older people avoid driving during rush hour, under bad weather conditions, and at night (Kline et al., 1992). Looking at accidents based on annual mileage, persons 65 years old and over are more likely to be involved in collisions. Lefrançois and D'Amours (1997) found a direct relationship between the level of risk for an accident and the frequency with which somebody uses a vehicle or the annual kilometers the person drives. In their research, older drivers most vulnerable to having traffic accidents were those who drove more than 13,000 kilometers. People living with a spouse were less at risk than widowed, divorced, or single drivers. The reason for this may be that within a marriage, the better driver usually drives. Accidents involving older drivers were different from those from other age groups because older drivers were more likely to be involved in multi-vehicle collisions caused by an error in changing lanes, directions, or reversing.

People who learned to drive prior to 1950 have no formal driver education. In the past, people did not have to take a driver's test in order to get their driver's license. However, in 1962, refresher courses for older drivers emerged. Research on how lack of education affects the older person's driving ability is not available in the literature on driving.

This section has underlined the fact that older people are less frequently involved in car accidents. However, by looking at kilometers driven, older drivers are more involved in accidents. On the other hand, older people refrain from risky driving situations by avoiding driving during rush hour, at night and in bad weather conditions

among the older population. As well, changes in the older person's driving habits and how these changes affect the safety of the road for all people are explored.

Psychomotor Abilities of Older Drivers

In general, old age is characterized by gradual physical decline. In most people, important negative psychomotor changes begin to accelerate after 55 and have noticeable impact around age 60 (see Figure 2). However, because many inter-individual differences can be found among the population, chronological age is less important.

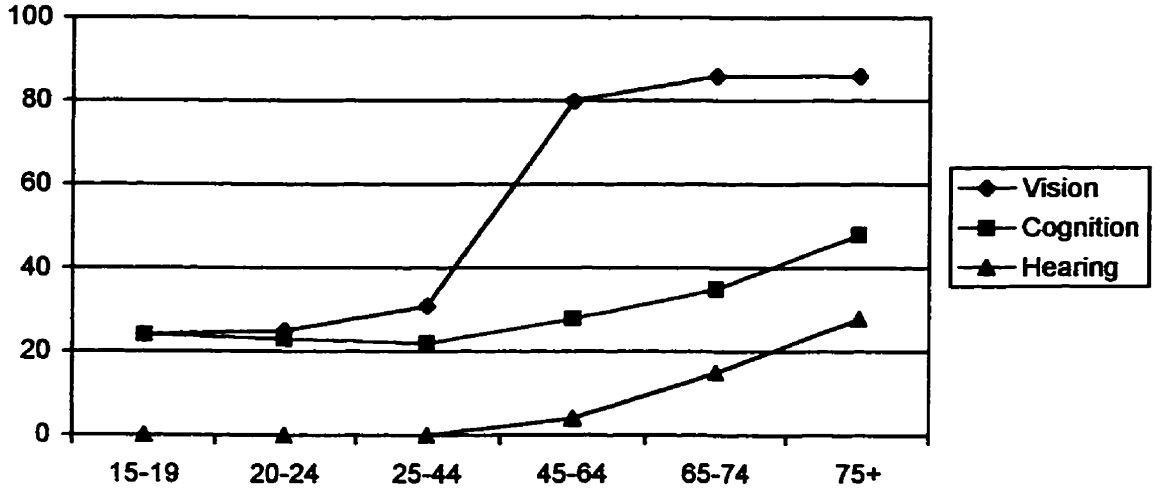


Figure 2:

Attributes with Reduced Function by Age Group, Age 15 and over, Canada, 1991

(In Statistics Canada, General Social Survey, 1991)

It would be interesting to discover if a decline in psychomotor abilities influences the driving behavior of people. In several studies, age alone has not been associated with

It would be interesting to discover if a decline in psychomotor abilities influences the driving behavior of people. In several studies, age alone has not been associated with worsening driving performance. For example, Hills and Burg did not find linkages between aging and decline of skills and accidents in their research (1977).

At the age of 25, less than one-third of Canadians (29%) report no reduced function in hearing, emotion, vision, pain, and cognition. Still, the most common functional problems among 25-year-olds are visual (50%), cognitive (26%), and emotional (21%). An equal proportion of interviewed persons have one function (35% overall) or two or more functions (34%) affected. Four percent of the adult Canadian population (762,000 persons) have a hearing problem, which is not overcome with a hearing aid, and 2% (405,000) have an uncorrected sight problem. Prevalence of reduced hearing function among women is seven percentage points higher than among men (74% vs. 67%). This difference is most pronounced at age 20-24 and disappears by age 75.

Vision. While 90% of sensory information available to the driver is visual, some studies show only weak or non-significant relationships between vision and accidents (Hills & Burg, 1977). These studies also show that the age group with the best vision (16- to 25-year-olds) has the highest accident rate. Visual impairment affects 9% of the Canadian population aged 65 and over, or one senior in 11 (National Advisory Council on Aging, 1997). Changes in vision are a normal part of the aging process (American Association of Retired Persons, 1992; Fozard, 1990). A reduction of water in the aging person leads to change in the eye structure in which less light enters the eye, thereby decreasing the ability to see. The aging process can affect the following characteristics of the eye:

- With the aging process, a deterioration in the ability to sense contrasts appears. Younger people are more sensitive to contrasts. Consequently, the vision of older drivers can be negatively influenced by poor illumination. Older people also have problems distinguishing colors.
- Static visual acuity is the acuity or clarity with which resting objects are perceptible. In poor weather conditions, static visual acuity is reduced even for people with good vision. Static visual acuity of an older driver is at least 20/60, or worse than that of a young, healthy person driving at night wearing dark sunglasses.
- The eye of an older person (65 years and older) needs much more time to produce a sharp picture of a fixed object than the eye of a young person (Schlag, 1993; Kosnik, 1988). The visual processing speed of an older person is reduced; hence, it takes the older driver longer to receive visual information and to make an appropriate decision.
- Dynamic visual acuity is the ability to visualize objects, which are moving in relation to the observer. This dynamic visual acuity decreases with age.
- With increasing age, the ability to bring objects into focus at a variety of distances decreases. Additionally, accommodation speed is reduced as well. Glasses (Kosnik, 1988), however, can correct this problem.
- Another change in vision is decreased ability to adapt. Sensitivity to glare increases with age. Consequently, older drivers have difficulties with nighttime driving, as the lights of oncoming traffic can affect their vision.
- The attentive window shrinks for individuals along with decreased speed of visual information processing. The useful field of vision (UFOV) is the visual field area over which the information can be acquired during a quick glance. The size of the

UFOV is a function of four variables. These include duration of target presentation; competing attentive demands of the central and peripheral tasks; salience of the peripheral target; and eccentricity or distance of the peripheral target from central vision (Ball & Owsley, 1991). Research has shown that the UFOV is related to the mental status of a person (the psychological state). UFOV reduction and a decrease in mental status can significantly predict crash frequency (Ball & Rebok, 1994).

- In addition to normal age-dependent changes, eye diseases increase with age. Cataracts, glaucoma, and age-related macular degeneration are common within the aging population. Among seniors, 6% lose their vision because of cataracts. Additionally, 7% of seniors are affected by glaucoma.

Since many older people experience a change in their eyesight, researchers try to link driving and vision. In MacDonald's research (1989), poor vision correlated with poor driving performance. On the other hand, in Owsley, Ball, Sloane, Roenker, and Bruni's research (1991), the strongest predictor of car accidents was the UFOV, followed by the mental status of the drivers. Fifty percent of the assessed persons had good visual function, but they failed the UFOV test. UFOV has been shown, conclusively, to be a better predictor for accidents than general visual functions.

Older drivers need to get closer to signs in order to identify messages. The mean legibility distance for older drivers is about 65-77% of that for younger drivers. In Sivak, Olson, and Pastalan's research, older subjects performed substantially worse than younger drivers on a nighttime legibility task (1981) did. This finding was linked to a discrepancy between objective and subjective assessment of visual performance. At the same time, older people were most often unaware of their vision problems (Ball &

Owsley, 1991). On the other hand, people who knew about their impaired vision tent to avoid difficult driving situations (Ball & Owsley, 1991; Owsley et al., 1991). Older drivers changed their driving habits in response to age-related visual declines (Kline et al., 1992). Fifteen percent of individuals in Hakkinen's research had subjective symptoms of glare, and 9% avoided driving at night or in bad weather (1984).

Several factors play a role in the driving situation and, therefore, influence one's driving performance. First, sign factors include the size of the legend, the contrast between the legend and its background, the luminance of the background, the stroke-width, and the direction of the luminance contrast. Environmental factors include effect of glare, detection, and contrast sensitivity. Finally, other significant factors include letter/background combination, the glare level, and glare angle (Sivak & Olson, 1982).

As discussed in the previous paragraphs, some of the visual functions can be improved through individual changes (i.e., glasses) and through social changes (i.e., size and color of the signs). Such changes can positively influence the older person's ability to drive and make driving safer for everybody.

Hearing. Changes in hearing sometimes occur with increasing age. Age-dependent hearing problems include the reduction of the hearing threshold (especially for high tones), problems in recognizing quiet signals, problems in having a conversation, and problems in direction hearing (MacDonald, 1989). The rate of impaired hearing is about 47.5% for those 85 years old and over. Of persons with a hearing impairment, 27.8% state that the difficulty began at or after age 65 (National Advisory Council on Aging, 1997). However, some of these weaknesses can be corrected with technical aids. Although there is no evidence that hearing limitations impede safe driving performance.

sound does function as an alarm system. Reduced hearing can result in slower reaction times and can, therefore, be a predictor of an accident.

Motor and Psychomotor Capacity. Driving is a complex activity. Drivers need to coordinate their head, neck, and upper and lower limb movements. Likewise, motor control is important for braking, steering, turning, lane changing, merging, and recovering from a skid. The aging process is sometimes connected with loss of muscular force and muscle tone (atrophy), and older drivers sometimes have problems with balance and slower reaction time (motor performance). Age-related diseases such as arthritis and rheumatism can also cause difficulties in driving because they can impair a person's ability to check over his or her shoulder.

Elderly people often fail to use "prepared information" in driving situations. They are often impaired when preparation is not possible, and they may be unable to select efficiently from among response alternatives. Elderly persons respond more slowly than their younger counterparts when response uncertainty increases (response selection). Simon and Pouraghabagher (1978) mentioned that response encoding is responsible for this slowing. Therefore, age-related deficits affect the restructure of planned movement (response programming).

Additionally, older people sometimes have difficulty dealing with increased task complexity. The greater the complexity of the task the slower the result. However, this deficit gradually diminishes with practice. Furthermore, older drivers are sometimes unable to regulate performance speed. There is an increase of approximately 2% in brake reaction/movement time for each successive 5-year age range, beginning at 15 years and over and ending at 75 years of age. Because of this slowing in response,

elderly drivers place importance on accuracy rather than on speed. However, practice in driving can minimize age differences in response slowing (Stelmach & Nahom, 1992).

The motor performance time increases particularly among inactive people. The joint flexibility of an older person declines by 25%; this decline is important because flexibility is necessary for scanning mirrors and turning the head to observe blind spots (Stelmach & Nahom, 1992).

A number of factors contribute to the slowing of motor performance. These factors include response preparation, selection, programming, and complexity. In many cases, the movements of older people get much slower; likewise, older people accelerate less quickly, have a smaller deceleration phase, and have difficulties reaching peak velocity quickly. Additionally, their muscular force may be impaired, and they often need more time in the deceleration phase of movement. There is also a slowing in the preparatory phase, and their ability to perform coordinated voluntary movements is diminished. However, most of these impairments can be minimized through practice. Older people who stay active and practice driving every day can avoid such a decline in their driving abilities. Furthermore, through experience/practice in driving, the behavior of the person becomes more constant, making it easier for the person to learn how to deal with changes (Schlag, 1993). A decline in one's ability may also be overcome by using compensatory skills (e.g., anticipation).

An area of major concern regarding the driving ability of older people includes the pathological changes that occur in later life which influence an older person's driving ability. The next section looks at these changes in more detail.

Pathological Changes. Normally, the older person's ability to drive is influenced more by pathological changes than by the general aging process (MacDonald, 1989). The following chronic diseases have been identified as playing an important role in one's driving ability: mental disorders, cardiovascular diseases, osteo-articulatory disorders, diabetes mellitus, and metabolic disorders. Older people oftentimes experience many diseases at the same time (multi-morbidity). Because of this situation, there is the potential for overload on medication, which can further interfere with one's ability to drive safely. Medications in general may have a longer and more intensive effect on the aging body than on a younger body, and they tend to increase the reaction time of an older person. Medications can also cause drowsiness, over-stimulation, and dulled reaction.

One example of a pathological event is a stroke. Stroke patients have difficulties entering and leaving the highway, handling traffic roundabouts, and performing two tasks at once in an emergency situation. Right-sided strokes cause more impairment in driving than left-sided strokes. Additionally, people who suffer from strokes sometimes exhibit deficits in performing left-sided tasks and secondary tasks. Research also demonstrated that diabetes mellitus impairs vision (e.g., such as blind in one eye) and decreases visual acuity (Reuben, Silliman, & Traines, 1988).

Additionally, alcohol has a greater impact on older people (blood alcohol concentration) than on younger people, and older people have a longer hangover phase because of reduced water content. On the other hand, older drivers most often avoid driving while impaired. Drunk driving is of greater concern among younger drivers.

Another area, which could influence the older person's driving ability, is the cognitive change of later life. These changes are discussed in the next section.

Cognition. Researchers describe the cognitive abilities of older people in a more positive way today than in the past. Significantly, thinking, intelligence, readiness to learn, and the ability to learn are connected with the education level of the person rather than with the person's chronological age.

The ability to pay attention and to concentrate on important ongoing events is essential in certain traffic conditions. Older people are more likely to get tired faster and they need more time to regenerate than younger people do. Both of these factors can affect the attention and concentration of the older driver. They sometimes need more time to find clues; they need more information to make decisions; and they need more time to do something. Slower reaction time can be caused by a radio in the car and by car or traffic noises. This is due to the brain's declining ability to filter out background noise with age. At the same time, the ability to process information received by the senses can be impaired. In traffic conditions, there may be too much information to allow an older person to make a judgment about correct driving behavior. In summation, dealing with distractions sometimes becomes more difficult with age.

Diminished short-term memory is also identified as a contributing factor in accidents. New traffic signs are sometimes unfamiliar, and some older drivers have a reduced ability to deal with new situations. MacDonald (1989) discovered a correlation between memory problems and the likelihood of a car accident.

Waller (1967) was the first to compare normal drivers with drivers who had dementia. Drivers with dementia have twice the number of accidents as "normal" older

drivers. Alzheimer patients are likely to exhibit attentive difficulties, their selective attention and attention-switching skills could be impaired. SDAT (Senile Dementia of Alzheimer's Type) is characterized by progressive memory loss, decline in one's ability to perform routine tasks, impaired judgment and attention, disorientation, and difficulty in learning. As expected, this latter group is a driving impaired group. In the Hunt, Morris, Edwards, and Wilson's (1993) research, attention, language and visio-perceptual abilities' correlated with the driving performance in SDAT patients.

In summary, older drivers are sometimes in danger on the road due to memory difficulties, reduced alertness, and limited ability to cope with novel and complex situations. They also have a tendency to tire quickly. However, age-dependent cognitive changes are not problematic if they stay within the normal aging range and if they are not influenced by pathological impairments.

Decision-making and Response Selection. In general, the older person's driving experiences are so extensive that they compensate for age-related impairments in the area of perception and reaction. At the same time, research shows that older drivers need more information before making decisions than younger drivers do. This need seems to be especially important in complex traffic situations (MacDonald, 1989).

Before changes in decision-making and response selection in later life are explained, the reader should be introduced to some important definitions. These definitions pertain to the following concepts: sight distance, perception response, reaction time, and response time. Sight distance establishes a criterion for sufficient visibility. Perception response (PR) starts when the obstacle becomes visible and ends when brakes are applied (approximately 2.5 seconds long). Reaction time is the interval between the

first possible sighting of the obstacle and the accelerator release. Response time is the interval between release of the accelerator and contact with the brake pedal.

In Olson and Sivak's (1986) research, older subjects' perception time was slightly longer than that of younger subjects in both surprise and brake conditions. The perception time in alerted conditions, however, is about the same among young and old subjects. On the other hand, the response time of older people in surprise conditions is less than that of their younger counterparts. In these situations, older drivers do not need more time to respond. Finally, older drivers display reduced perception of details in complex traffic situations and, therefore, need more time to react.

Reaction plays an important role in all driving situations and, as reaction time increases, so does risk of an accident. However, older people are a very heterogeneous group characterized by many differences, and often change their driving habits in order to compensate for possible declines in reflexes.

The impairments of an older person will have an impact on the older person's driving ability if he or she cannot be overcome with special aids. Older drivers, in general, try to compensate for their impairments by changes in their driving styles. Furthermore, older persons most often avoid driving at peak times of the day and in dangerous traffic situations. For example, research (Schlag, 1993) showed that the elderly tend to drive more slowly on motorways. On country roads, older people drive more moderately. Stated another way, velocity factors are correlated with the younger driver population. Younger people drive faster, and accelerate faster, as well as pass other vehicles more often, they also accept smaller time gaps (Schlag, 1993). Schlag (1993) pointed out that experience in driving makes for safer driving.

As noted previously, driving requires several different sets of functional capabilities. First, drivers need sensory ability to perceive changes in their rapidly changing environment. Second, they need mental ability to judge and process perceived information and to make appropriate choices. Third, motor skills are essential to execute decisions. Finally, if any of these abilities have been compromised, it is essential for the driver to compensate for these losses. Many impairments among older drivers can be overcome with special aids and help from the community.

Given the importance of driving in maintaining independence and facilitating social support, it is essential that measures be developed that are age fair and that permit restriction of licensing to a measure of high predictability of accidents rather than age alone (Odenheimer et al., 1994). Older people's decisions to stop driving typically are based on recognition of their failing abilities or on a legal requirement (Campbell, Bush, & Hale, 1993). A problem here, admittedly, relates to deciding what cut-off point is reasonable in order to ensure safe driving practices. A troublesome challenge is development of measures that are independent of age alone.

Research Hypotheses

A prominent controversy associated with driving and elderly people is society's attitude. Often, the image of old age is one of physical and mental decline, as well as economic uselessness and dependency (Lehr, 1971). These assumptions are amplified by conditions of social disadvantage and role loss. In contrast, the view held by most professionals is that the older adult should be encouraged to remain healthy, active, and independent. This is supported by the World Health Organization, which defines health

as a state of complete physical, mental, and social well being (Garfein & Herzog, 1995). Despite this idea, the general public seems to have become overly sensitized to and alarmed by the increasing number of older adults behind the wheel — the media reflects these fears. For instance, headlines like "Driving skills deteriorate with age" (O'Leary, 1996) occurs frequently in newspapers. Fortunately, the growth of associations such as the American Association of Retired Persons and related political support offer hope that the general public can be provided with a more accurate depiction of the older adult as a driver. As one older person indicated, "Driving is a way of holding onto your life." Older respondents in studies typically describe the car as more than "just transportation" (Eisenhandler, 1990).

In the fall of 1996, the Ontario Ministry of Transportation introduced a new program to help keep seniors mobile and independent longer. However, this program identifies unsafe drivers among the older driver population. The Ministry stated that

> prior to the fall of 1996, drivers reaching their 80th birthday completed an annual vision test, a knowledge test and a road test to retain their driving privilege. This program changed on October 28, 1996. ... Under the new system, senior drivers must complete a vision test and a knowledge test and will take part in a group education session. A small number of drivers will be asked to take a road test to have their in-car skills assessed (Ontario Ministry of Transportation, 1996).

With the new policy, only those older people who have problems with the other test sections will have to take a road test. Changing the policy in this direction may be very helpful, since many older drivers never had to demonstrate their driving skills in order to obtain a license, as one did not have to pass a test 40 years ago. Interestingly,

policy-makers have chosen age (80 years) as the critical factor. As pointed out earlier, other countries do not have age-linked policies like this. For instance, in Germany, everybody has a right to drive and people of any age who are involved in an accident are reassessed. However, there is no age bracket whereby all people must be retested in order to keep their driver's licenses. Germany appears to be less biased against older drivers than Canada; perhaps this is due to its population distribution. In 1993, 15% of the whole population in Germany were more than 65 years of age (Statistisches Jahrbuch für die BRD, 1995). In contrast, Canada's 1990 population included 11% of people 65 years old or older (Norland, 1994). Canada is described in the literature as a very young country. While Germany and many other European countries are called old countries, because of their long histories and their high proportion of older people. These differences between Canada and Germany in the area of distribution of population may explain their dissimilarities in attitudes about older people. With a higher proportion of older people in Germany, younger people comprise a minority. In comparison, in Canada older people are still a minority.

The Ministry of Transportation has stated that "all drivers are assessed by a trained counselor. Drivers who have indications that they may pose a road safety risk will be required to take a road test." One would assume that the counselor who decides which older person must take a road test might have specific knowledge of and/or attitudes about the older generation. The counselor's positive or negative attitudes, assuming that the counselor comes from a younger generation than the person taking the test, may influence his or her decision-making. A counselor holding negative stereotypic beliefs would likely enforce a higher percentage of road tests than a person with more

positive stereotypic beliefs would. Additionally, it is of interest to consider what younger people know about older drivers, what kind of attitudes they have toward them, and if these attitudes influence younger people's driving behavior.

The following hypotheses were developed to examine the attitudes and knowledge of younger people about older people. Research suggests that specific attitudes can be found in all areas of society; driving is one example. Given the increasing numbers of older drivers and the importance of the ability to drive for independence, the findings of this research may be of great importance.

1. Younger people have negative attitudes about older people, including older drivers. Tajfel (1982) pointed out the necessity of describing one's own group/generation in more positive terms than is used to describe others. This is in order to increase one's self-esteem. Everyone tries to put his or her own generation/group into a positive perspective. At the same time, stereotypes are important in order to understand intergroup relations and to differentiate between generations/groups. Hummert (1993) found that, in comparison to young adults, the elderly associate older age with positive stereotypes.

Stereotypes about the older generation exist in different areas of society and in different situations (Tuckman & Lorge, 1953). One example is our social policies surrounding the age at which people must retire. Crocket, Press, and Osterkamp (1977) found that, as a group, old people are perceived to be socially alienated, psychologically restricted, and physically impaired. Young people stereotype the elderly because of their physical characteristics (e.g., slow, feeble, tired, deaf, dependent, crippled, and disabled), social characteristics (e.g., retired, bleak, forgotten, nothing to do, dignified, trapped,

senior citizens, and mobile home parks), and psychological characteristics (e.g., nice, friendly, anxious, confused, mean, grouchy, frightening, senile, and intolerant). Negative stereotypes can also be found in the driving environment. For instance, Nelson, Evelyn, and Taylor (1993) studied 127 younger and 108 older drivers, who voluntarily registered in driver's education courses, by having them complete questionnaires about attitudes and behaviors pertinent to safe driving. The data showed that younger drivers view older drivers as overly cautious, too slow to act, and more likely to cause accidents.

2.A. Younger people have more negative attitudes about older women than older men. Ebel (1987), in his article, considered pictures of older people in German schoolbooks and fairy tales. He concluded that older females are more likely to be associated with negative attitudes, such as ugliness, worthlessness, and malice than older males are. In contrast, the older male is more likely to be described as good-natured. Hastenteufel (1980) in her research concentrated on gender differences that are evident in pictures of older people in advertisements. Her results showed that older males are associated with activity, financial security, experience, and vitality while older females are described as more restricted in their personalities; they are regarded to be more helpless and simple than older males. Another gender variable can also affect the stereotyping process.

2.B. Younger males have more negative attitudes about older people than do younger females. Braithwaite's data (1996) showed that female respondents are more likely to express a positive attitude about the elderly than male respondents.

3. Younger drivers who have more meaningful contact with the older generation and with older drivers will hold a more positive view of them. In their research, Rosencranz and McNevin (1969) anticipated that the amount and quality of contact that a person has with elderly people would affect the respondent's attitudes about persons 70 years of age and older. They included in their design the age of the respondent's older parent, contact with older unrelated people, and institutional contact with the elderly. The respondents who had close contact with grandparents (daily or weekly visits with at least one grandparent) judged seniors more favorably than those who had little or no contact with grandparents. Additionally, those respondents who had meaningful contact with at least one older person had more favorable attitudes about older people. Finally, the quality of contact with older people had a positive influence on the respondents' judgments. Braithwaite (1996) concluded that positive attitudes about the aging process and about elderly people accompanied more frequent contact with them, however, frequency of contact was not as relevant as quality of contact.

4. Younger drivers with more accurate knowledge of older drivers and the aging process will hold a more positive view of them. In several studies, better education was connected with positive attitudes about the aged (Harris, 1975; Thorson, Whatley, & Hancock, 1974). Increasing knowledge of members of a certain group was positively correlated with the differentiation of these group members (Heckhausen, Dixon, & Baltes, 1989). For example, knowing several people within a school class makes a person realize that not all teenagers are the same.

5. Negative attitudes about older drivers will be related to negative behavior toward older drivers. Fishbein and Ajzen (1975) in their "Consistency Theory" assumed that individuals strive for consistency among their beliefs, attitudes, and behaviors. The researchers based their theory on Festinger's "Theory of Cognitive Dissonance" (1957). Festinger pointed out that inconsistency between two cognitive elements (beliefs, attitudes, or behavior) contributes to the development of conflict. The individual tries to avoid this dissonance by changing one or more cognitive elements in order to eliminate the unpleasant situation. Therefore, if a person's behavior is inconsistent with his or her attitude, the person may try to reduce the dissonance by changing either his or her attitude or his or her behavior. Stereotypes can also influence how we interpret the behavior of others, what we remember about other people, and how we behave toward them (Ford & Stangor, 1992). This is also the case in specific situations such as driving. For instance, someone who thinks that an older person is unskilled in driving will expect an older driver to have problems driving and will act in certain ways on the road. The young driver's negative stereotyping may cause him or her to be impatient toward older drivers and to act aggressively.

# Method

## Participants

In order to answer the aforementioned questions, 194 Laurentian University students from 3 different courses/programs, including Gerontology (n = 39), Human Kinetics (n = 90), and Psychology (n = 65), and 45 Cambrian College students from a Fitness and Recreation course volunteered to fill out a questionnaire.

The students were between 18 and 53 years old ($M$ = 21.12) and included 84 males (35.1%) and 155 females (64.9%). Of these 239 students, 232 were single (97%). For the most part, the students had driving licenses (n = 228) and had driven for 1 to 30 years ($M$ = 4.81). Out of the drivers in this sample, 124 drove daily (54.6%), 43 weekly (18.9%), and 58 monthly (25.6%). Additionally, 79 of the drivers in this sample drove less than 3,000 kilometers (35.3%), 69 drove between 3,000 and 7,999 kilometers (30.8%), and 40 drove between 8,000 and 12,999 kilometers (17.9%) during the last year.

## Procedure

Students were asked to fill out a questionnaire on "Young Adults' Attitudes about Older Drivers" (see Appendix). They were informed that this was voluntary and that they could drop out at any time, or leave out questions they did not want to answer. Additionally, the first page of the questionnaire was a consent form, which they were asked to read carefully. They were told not to put their name on the questionnaire. The Psychology students were given a bonus mark for filling out the questionnaire, whereas all other groups received no credit for their participation.

Before handing out the questionnaires, the students were divided into two groups: 50% of the participants answered questions about older females and 50% answered questions about older males (see Table 1).

Table 1

Sample Size for Participants' Gender by Seniors' Gender

| | | Participants' Gender | | Total |
|---|---|---|---|---|
| | | Males | Females | |
| Seniors' Gender | Males | 43 | 76 | 119 |
| | Females | 41 | 79 | 120 |
| Total | | 84 | 155 | 239 |

## Measures

A structured questionnaire was created to measure younger people's attitudes and knowledge of older male or female drivers (see Appendix). Using the Aging Semantic Differential (Rosencranz & McNevin, 1969) with 32 bipolar scales (i.e., progressive/ old-fashioned; consistent/ inconsistent), the participants' descriptions of themselves and their perceptions of older people in general were measured. The participants were asked to identify an adjective on a seven-point Likert scale which best described the reference group. The participants had to decide whether the adjective was very closely (1 or 7), quite closely (2 or 6), or only slightly (3 or 5) associated with the person. They could also consider the scale completely irrelevant, or both sides equally associated (4). For the participants' attitudes about older drivers and descriptions of themselves as drivers, different polar adjectives important for driving were developed (see Appendix).

The questionnaire consisted of six parts. The first part included general information about the participant such as age and marital status. The second part looked at the participant as a driver and included questions concerning his or her years of driving experience, the approximate mileage the person drove per year, and a description of the person as a driver.

The third part solicited the participants' opinion of older people in general. All questions were repeated for three age groups, 55- to 64 years; 65- to 79 years; 80 years and older. This section included questions such as the number of older people the participant knew well, ranging from zero to more than 10 on a four-point scale (0; 1-5; 6-10; 10+). Also measured was frequency of contact with older people. A three-point scale, ranging from 1-5; 6-10 to 10 and more was used. Additionally, questions focused on the participants' attitudes about older people using the Aging Semantic Differential Scale.

The fourth part looked at the participants' relationship to older drivers. The questions concerned the participants' opinion of the new retesting program for older drivers. Furthermore, they were asked about the number of older drivers they knew quite well and the number of older competent drivers they knew. The same three age groups (55- to 64 years; 65- to 79 years; 80 years and older) were used here as well. Participants were also asked, "Have you ever acted differently toward a female/male driver aged 65 or over?" After answering "Yes," they had to "describe one example of what the older person was doing and how they acted differently in this situation" in an open-ended response.

The fifth part assessed the participants' knowledge of older people and the aging process in six questions concerning independence and health of the older population. The questions included older people's satisfaction with their health, and percentages related to arthritis, dementia, chronic pain, and depression among people more than 65 years of age. These questions were developed using various sources. For instance, in 1985, the National Advisory Council on Aging suggested that "up to 80% of seniors received help with at least one activity, including grocery shopping, housework, meal preparation, yard work, managing money, personal care" (1993). Another example taken from the National Advisory Council on Aging is "In 1991, 1.2 million seniors had arthritis. This represented 37.5% of Canada's seniors" (1997).

The last part looked at the participants' knowledge of older drivers. Five two-choice questions and two yes-no questions asked about older people's (65 years and older) impairments (vision, and reaction time) and driving demographics (proportion of accidents, frequency of injuries, car accidents per year, car accidents per kilometer). Statistics Canada reported that, "of all motor vehicle accidents, 45% occurred to people under age 25. Thirty-one percent of all motor vehicle accidents involved men aged 15 to 24." Furthermore, two articles concluded that "the cohort aged 65 or over suffers less material damage and injury, and has a marginal death rate" (Torpey, 1986; in Lefrançois & D'Amours, 1997). Additionally, two other articles mentioned that "the proportion of accidents involving elderly drivers are significantly lower than the weight they represent among all road users" (Rothe, 1990; in Lefrançois & D'Amours, 1997).

Once the questions were developed, the researcher performed a small pilot study of five younger drivers. The participants were asked to comment on the clarity and

relevance of the questions and whether the questionnaire was readily understood and straightforward. Afterwards, the questionnaire was changed in some parts and a second pilot was run. For this purpose, 20 first-year Human Kinetics students completed the questionnaire. Results of this sample indicated that the questionnaire was ready.

## Design

General Attitudes. Using the scores from the Aging Semantic Differential Scale, six factor analyses were performed to describe better the participants' view of older people in the three age groups (in general and as drivers). Principal axis factoring (PAF) was performed to determine the factor structure among the variables with unique and error variance removed.

Hypotheses 1 and 2. Participants' attitudes about themselves as people and as drivers and toward older people in general and as older drivers were assessed. The three independent variables used were participants' age, participants' gender, and seniors' gender. The variable age included three categories: students 18 to 19 years of age (coded as 1), students between 20 and 23 years of age (2), and students 24 to 53 years of age (3). Furthermore, the ratings on all of the seven-point scales had to be recoded so that all positive adjectives would equal one and all negative adjectives seven. To determine if negative stereotypes existed, each scale was recoded and summed. In this case, the eight different attitude scales were used as dependent variables (see Table 2). Two 2 x 2 x 4 (Participants' Gender x Seniors' Gender x Age Reference) Analyses of Variance (MANOVA) with repeated measures on the last factor were used to test the first and second hypotheses.

Table 2

Attitudes about the General Population and about Older Drivers

| Variable | N | Mean* | Std. Dev. |
|---|---|---|---|
| own general | 212 | 2.48 | 0.69 |
| 55-64 general | 220 | 3.34 | 0.73 |
| 65-79 general | 226 | 3.82 | 0.80 |
| 80+ general | 222 | 4.30 | 0.94 |
| own driver | 215 | 2.25 | 0.67 |
| 55-64 driver | 231 | 3.42 | 1.14 |
| 65-79 driver | 235 | 4.09 | 1.08 |
| 80+ driver | 230 | 4.68 | 1.12 |

* A higher score means a more negative attitude; means greater than 4 are negative attitudes

Before starting the analysis, the dependent variables had to be investigated for multicollinearity. Tables 3 and 4 show the correlation between the attitude scales. Several correlation coefficients between variables were significant, but none of the correlation coefficients were excessively high; therefore, the assumption for MANOVA was satisfactory.

Table 3

Intercorrelations among Attitudes about the General Population in four Age-groups

| | own | 55 to 64 years old | 65 to 79 years old | 80+ years old |
|---|---|---|---|---|
| own | 1.00 | | | |
| 55 to 64 years old | 0.22** | 1.00 | | |
| 65 to 79 years old | 0.11 | 0.65** | 1.00 | |
| 80+ years old | 0.12 | 0.53** | 0.80** | 1 |

Table 4

Intercorrelations among Attitudes about Drivers in four Age-groups

| | own | 55 to 64 years old | 65 to 79 years old | 80-year-old driver |
|---|---|---|---|---|
| own | 1.00 | | | |
| 55 to 64 years old | 0.17* | 1.00 | | |
| 65 to 79 years old | 0.17* | 0.71** | 1.00 | |
| 80-year-old driver | 0.09 | 0.52** | 0.81** | 1 |

Hypotheses 3 and 4. In order to determine whether different attitudes can be predicted through contact with older people, general knowledge of older people, and knowledge of older drivers, six Stepwise Linear Regression analyses were performed. Stepwise Linear Regression was used to reveal independent effects of different variables and to identify which variables were more important than others in predicting attitudes. The variables of the six attitude scales were used as dependent variables. The participants' age, seniors' gender, participants' gender, students' course, 2 contact variables (3 Age Groups x 2 Contact Variables x General/Driver) and two knowledge variables (general knowledge, and knowledge of older drivers) were used as predictor variables in these analyses.

Before starting the analyses, correlation among all predictors were computed. Most of the correlation coefficients were small (see Table 5). However, the correlation coefficients between the two contact variables in the three groups of drivers were high (see Table 6). Therefore, the two contact variables were combined.

Table 5

Intercorrelations between Contact and Number of Older People known by the Participant

| | contact to 55 to 64-year-old people | contact to 65 to 79-year-old people | contact to people 80 years or older |
|---|---|---|---|
| know 55 to 64 year-old | .569** | | |
| know 65 to 79 year-old | | .494** | |
| know 80 years or older | | | .574** |

Table 6

Intercorrelations between Number of Drivers and Number of Competent Drivers known by the Participant

| | competent driver 55 to 64 | competent driver 65 to 79 | competent driver 80+ |
|---|---|---|---|
| know driver 55 to 64 | .920** | | |
| know driver 65 to 79 | | .789** | |
| know driver 80+ | | | .646** |

The last part of the questionnaire included six questions concerning the participants' knowledge of older people and the aging process in general, as well as seven questions concerning their knowledge of older drivers. Each correct answer was accorded one point. In the end, the right answers were summed and two different scores were created — a general knowledge score with a maximum of six points, and a driving knowledge score with a maximum of seven points. The general knowledge score was answered by 233 participants ranging from 0-6 points ($M = 2.96$, $SD = 1.14$). Additionally, 232 participants answered the driving knowledge score ranging from 2-7 points ($M = 3.81$, $SD = .99$). Also, a correlation was performed to identify the relationship between the two knowledge variables. The result showed that the knowledge variables were not correlated and were therefore used independently ($r = .116$, $p > .05$).

Hypothesis 5. To answer this hypothesis, content analyses were performed on the participants' behavior toward older drivers and drivers' behavior. First, it was of interest to determine whether certain attitudes about older people in general and toward older drivers were related to a specific behavior described in the answers. For this, the attitude variables were recoded, as it is not possible to use continuous variables in cross

tabulations. As a result, means greater than 4 were coded as 1, meaning negative attitudes, and means smaller than 4 were coded zero, meaning positive attitudes.

Finally, the relationship between both behavior variables (described behavior of the older driver by the young participant and the young participants' self-description of their driving behavior) was examined in order to determine if the self-described behavior of the young driver was related to the description of the older driver's behavior.

## Results

### General Attitudes

Looking at the means in Table 2 shows that participants described themselves positively. They also described older people between 55 to 64 years of age in general and 55 to 79-year-old drivers positively.

In order to summarize the young participants' descriptions of older people in general and as drivers, six Factor Analyses were performed. Factors with loadings greater than .60 were used (Tabachnick & Fidell, 1996). Characterizing 55- to 64-year-old people in general, three factors were extracted, however, no variable loaded on the second factor. Five of the 13 items loaded on the first factor, which explained 29% of the variance (Table 7). The variables are listed by importance: happy, certain, organized, cooperative, and active. The item "old fashioned" loaded on the third factor with .646, explaining 9% of the variance. Interestingly, all items except "old fashioned" are positive descriptions. In total, the three factors explained 51% of the variance. People 55 to 64 years old were therefore seen as "happy and certain," but "old fashioned."

Table 7

Factor Analysis of Participants' Attitudes about 55- to 64-year-old People in General

| Variables | Factor Loading | |
|---|---|---|
| | Factor 1 | Factor 3 |
| progressive/old-fashioned | | 0.65 |
| active/passive | 0.61 | |
| cooperative/uncooperative | 0.62 | |
| organized/disorganized | 0.64 | |
| happy/sad | 0.69 | |
| certain/uncertain | 0.64 | |
| Eigenvalue | 3.82 | 1.18 |
| % of Variance explained | 29.40% | 9.06% |

The attitudes about people 65 to 79 years old also loaded on three factors (see Table 8), but again none of the variables loaded on the second factor. In total, the three factors explained 56% of the variance. People 65 to 79 years of age were described as "productive and cooperative," but "old fashioned."

Table 8

Factor Analysis of Participants' Attitudes about 65- to 79-year-old People in General

| Variables | Factor Loading | |
|---|---|---|
| | Factor 1 | Factor 3 |
| progress./old-fashioned | | 0.71 |
| productive/unproductive | 0.75 | |
| busy/idle | 0.62 | |
| active/passive | 0.67 | |
| cooperative/uncooperative | 0.70 | |
| organized/disorganized | 0.61 | |
| happy/sad | 0.69 | |
| Eigenvalue | 4.45 | 1.15 |
| % of Variance explained | 34.22% | 8.85% |

The attitudes about 80-year-old people were somewhat different from the two other age groups (see Table 9). Nine items loaded on the first factor, explaining 38% of the variance. These items included: unproductive, happy, organized, cooperative, certain, idle, passive, pleasant, and intolerant. The second factor explained 13% of the variance

and had loading from the item "dependent." Both factors together explained 51% of the variance. Therefore, people 80 years and older were described on one hand as "happy," and on the other hand, "dependent."

Table 9

Factor Analysis of Participants' Attitudes about 80-year-old People in General

| Variables | Factor Loading | |
|---|---|---|
| | Factor 1 | Factor 2 |
| independent/dependent | | 0.61 |
| productive/unproductive | 0.74 | |
| busy/idle | 0.65 | |
| active/passive | 0.63 | |
| cooperative/uncooperative | 0.67 | |
| organized/disorganized | 0.71 | |
| happy/sad | 0.71 | |
| certain/uncertain | 0.67 | |
| tolerant/intolerant | 0.63 | |
| pleasant/unpleasant | 0.64 | |
| Eigenvalue | 4.96 | 1.71 |
| % of Variance explained | 38.13% | 51.33% |

When describing 55- to 64-year-old drivers, two factors were extracted (see Table 10), although no item reached .60 on the second factor. The first factor had loading on seven items and explained 55% of the variance. Both factors together explained 70% of the variance. Drivers 55 to 64 years of age were seen as pleasant, skilled, clear thinking, safe, alert, courteous, and their driving speed appropriate. Drivers 55 to 64 years old were therefore described as "pleasant to be with on the road and skilled."

Table 10

Factor Analysis of Participants' Attitudes about 55- to 64-year-old Drivers

| Variables | Factor Loading Factor 1 |
|---|---|
| skilled/unskilled | 0.78 |
| courteous/uncourteous | 0.63 |
| driving speed appropriate/inappropriate | 0.74 |
| safe/dangerous | 0.75 |
| alert/inattentive | 0.74 |
| clear thinking/confused | 0.75 |
| pleasant/unpleasant | 0.79 |
| Eigenvalue | 3.87 |
| % of Variance explained | 55.23% |

The participants' attitudes about drivers 65 to 79 years of age loaded likewise on two factors, although no item reached .60 on the second factor (see Table 11). Factor one had loading on the items unpleasant, unskilled, inattentive, inappropriate driving speed, and dangerous. This factor explained 49% of the variance. Both factors together explained 67% of the variance. Thus, drivers 65 to 79 years of age were described as "unpleasant to be with on the road and unskilled."

Table 11

Factor Analysis of Participants' Attitudes about 65- to 79-year-old Drivers

| Variables | Factor Loading Factor 1 |
|---|---|
| skilled/unskilled | 0.77 |
| driving speed appropriate/inappropriate | 0.72 |
| safe/dangerous | 0.72 |
| alert/inattentive | 0.73 |
| pleasant/unpleasant | 0.81 |
| Eigenvalue | 3.46 |
| % of Variance explained | 49.42% |

The attitude scale for drivers' 80 years or older also loaded on two factors (see Table 12). The first factor included the items unpleasant, inattentive, dangerous, inappropriate driving speed, unskilled, and confused and explained 49% of the variance. Both factors together explained 67% of the variance. Accordingly, drivers 80 years and older were defined as "unpleasant to be with on the road and inattentive."

Table 12

Factor Analysis of Participants' Attitudes about 80-year-old Drivers

| Variables | Factor Loading Factor 1 |
|---|---|
| skilled/unskilled | 0.69 |
| driving speed appropriate/inappropriate | 0.71 |
| safe/dangerous | 0.73 |
| alert/inattentive | 0.75 |
| clear thinking/confused | 0.68 |
| pleasant/unpleasant | 0.78 |
| Eigenvalue | 3.45 |
| % of Variance explained | 49.31% |

Attitudes about Seniors in General

A 2 x 2 x 4 (Participants' Gender x Seniors' Gender x Age Reference) Analysis of Variance (MANOVA), with repeated measures on the last factor (general self-description, general attitude about 55- to 64-year-old people, general attitude about 65- to 79-year-old people, and general attitude about 80+-year-old people) was computed. The results, as recorded in Table 13, revealed only an age reference main effect, $F(3,183) = 181.19$, $p<.01$. An Age Reference x Participants' Gender interaction, with $F(3,183) = 3.05$, $p<.05$. Neither other main effects nor interactions were significant.

Table 13

2 x 2 x 4 ANOVA for Seniors' Gender by Participants' Gender by Age Reference Effect on Attitudes about Older People in General

| Source | df | F | p |
|---|---|---|---|
| Seniors' Gender | 1 | 0.17 | 0.68 |
| Participants' Gender | 1 | 2.39 | 0.12 |
| Seniors' Gender x Participants' Gender | 1 | 1.43 | 0.23 |
| Age Reference | 3 | 181.19 | 0.00** |
| Age Reference x Seniors' Gender | 3 | 0.68 | 0.56 |
| Age Reference x Participants' Gender | 3 | 3.05 | 0.03* |
| Age Reference x Seniors' Gender x Participants' Gender | 3 | 1.87 | 0.14 |

Because of the significant second order Age Reference x Participants' Gender interaction, tests were performed to investigate where the differences lay. To investigate the influence of participants' gender on each of the four age references, four separate one-way Analyses of Variance (ANOVA) were carried out (see Table 14). The analyses revealed a gender effect when the participants rated 65- to 79-year-old people but not when they rated themselves, 55- to 64-year-old, and people 80 years and older. That explains male and female participants had different attitudes about 65- to 79-year-old people in general.

Table 14

One-Way ANOVA for Participants' Gender Effect on Attitudes

| Source | df | F | p |
|---|---|---|---|
| own | 1 | 0.76 | 0.38 |
| 55- to 64-year-old people | 1 | 3.91 | 0.49 |
| 65- to 79-year-old people | 1 | 2.88 | 0.03* |
| 80-year-old people | 1 | 3.49 | 0.05 |

In addition, separate one-way analyses of variance for each participant's gender were carried out. Within the female and male participants, the results revealed a significant age reference main effect, with $F(3,378) = 196.37$, $p<.01$, and $F(3,183) = 142.69$, $p<.01$ respectively. For both effects paired t-tests revealed significant differences between all four age references. Thus, these analyses indicated, as can be seen in Figure 3 that attitudes about seniors shifted in a negative direction as the age being rated by the younger participants increased. Also, there was a trend for male participants to rate seniors more negatively than female participants were, but this difference was only significant for 65- to 79-year-olds.

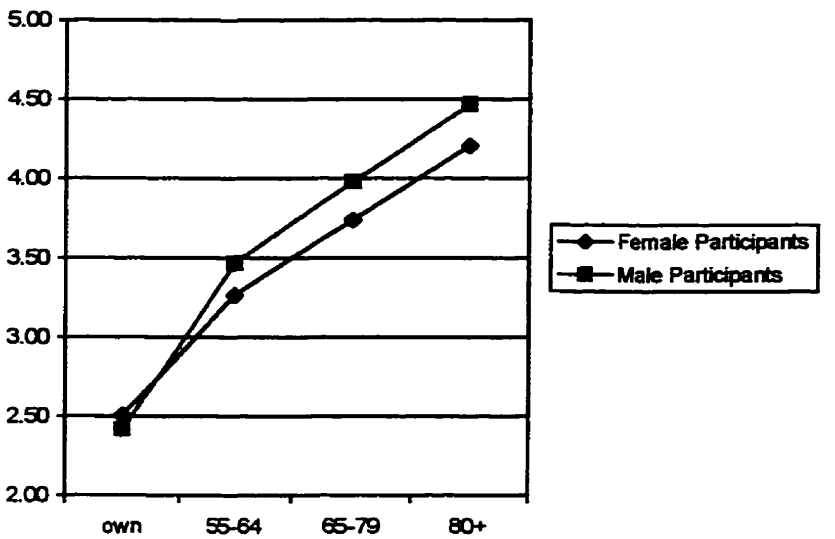


Figure 3:

Means for Age References (own, 55- to 64-years-old, 65- to 79-years-old, and 80 years or older) by Participants' Gender (males, females). This figure shows how male and female participants described themselves and older people from three age groups in general.

Attitudes about Drivers

A 2 x 2 x 4 (Participants' Gender x Seniors' Gender x Age Reference) Analysis of Variance (MANOVA), with repeated measures on the last factor (self-description as a driver, attitude about 55- to 64-year-old drivers, attitude about 65- to 79-year-old drivers, and attitude about 80+ year-old drivers) was computed. The results, shown in Table 16, revealed significant main effects of seniors' gender, $F(1,203) = 6.35$, $p<.05$, participants' gender, $F(1,203) = 6.93$, $p<.01$, and Seniors' Gender x Participants' Gender, $F(1,203) = 6.91$, $p<.01$. Furthermore, a significant second order interaction was revealed for Age Reference x Seniors' Gender with $F(3,201) = 4.03$, $p<.01$. Additionally, the third-order interaction Age Reference x Seniors' Gender x Participants' Gender was significant with $F(3,201) = 4.09$, $p<.01$. The main effects indicated that, in general, male participants rated drivers more negatively than female participants, older females were rated more negatively than older male drivers, and that drivers were rated more negatively as age increased.

Table 15

2 x 2 x 4 ANOVA for Seniors' Gender by Participants' Gender by Age Reference Effect on Attitudes about Drivers

| Source | df | F | p |
|---|---|---|---|
| Seniors' Gender | 1 | 6.35 | 0.01* |
| Participants' Gender | 1 | 6.93 | 0.00** |
| Seniors' Gender x Participants' Gender | 1 | 6.91 | 0.01** |
| Age Reference | 3 | 259.72 | 0.00** |
| Age Reference x Seniors' Gender | 3 | 4.03 | 0.00** |
| Age Reference x Participants' Gender | 3 | 1.36 | 0.26 |
| Age Reference x Seniors' Gender x Participants' Gender | 3 | 4.09 | 0.00** |

Because of significant three-order interaction Age Reference x Seniors' Gender x Participants' Gender within the 2 x 2 x 4 Analysis of Variance (MANOVA), secondary analyses were performed to investigate where the differences lay. Participants' Gender x Seniors' Gender two-way analyses of variance (ANOVA) for each of the four age references were carried out, the results of which is shown in Table 16.

Table 16

2 x 2 ANOVA for Participants' Gender by Seniors' Gender in the Four Age Groups Effect on Attitudes about Drivers

| Source | df | F | p |
|---|---|---|---|
| own | | | |
| Seniors' Gender | 1 | 0.03 | 0.87 |
| Participants' Gender | 1 | 0.01 | 0.92 |
| Seniors' Gender x Participants' Gender | 1 | 0.27 | 0.61 |
| 55- to 64-year-old drivers | | | |
| Seniors' Gender | 1 | 10.62 | 0.00** |
| Participants' Gender | 1 | 9.06 | 0.00** |
| Seniors' Gender x Participants' Gender | 1 | 10.11 | 0.00** |
| 65- to 79-year-old driver | | | |
| Seniors' Gender | 1 | 10.45 | 0.00** |
| Participants' Gender | 1 | 8.14 | 0.00** |
| Seniors' Gender x Participants' Gender | 1 | 7.01 | 0.01* |
| 80-year-old drivers | | | |
| Seniors' Gender | 1 | 2.96 | 0.09 |
| Participants' Gender | 1 | 6.95 | 0.00** |
| Seniors' Gender x Participants' Gender | 1 | 2.67 | 0.10 |

Because of the significant Participants' Gender x Seniors' Gender interaction within the 55- to 64-age reference and 65- to 79-age reference, tests were performed to identify where the differences lay. To investigate the relation between participants`` gender and seniors' gender within the two age references, four separate Analyses of Variance (ANOVA) were carried out (see Table 17). The analyses revealed a gender effect when male participants rated 55- to 64-year-old drivers, and 65- to 79-year-old

drivers. That explains male participants differentiated between male and female drivers within the driver's population of 55- to 64-year-old people and 65- to 79-year-old people. The analyses did not reveal a gender effect when female participants described those age groups of drivers. That explains female participants did not differentiate between male and female drivers. The results further revealed no significant participants' gender effect when male seniors were described, meaning that female and male participants described male drivers in the same way. However, significant participants' gender effect was revealed when female seniors in those two age groups were described. That explains female and male participants had different attitudes about female drivers' 55 to 79 years of age.

Table 17

2 x 2 ANOVA for Participants' Gender by Seniors' Gender Effect on Attitudes about Drivers

| Source | df | F | p |
|---|---|---|---|
| Male Participants | | | |
| 55 to 64 years old | 1 | 13.44 | 0.00** |
| 65 to 79 years old | 1 | 9.75 | 0.00** |
| Female Participants | | | |
| 55 to 64 years old | 1 | 0.00 | 0.94 |
| 65 to 79 years old | 1 | 0.26 | 0.61 |
| Male Drivers | | | |
| 55 to 64 years old | 1 | 0.01 | 0.90 |
| 65 to 79 years old | 1 | 0.02 | 0.89 |
| Female Drivers | | | |
| 55 to 64 years old | 1 | 18.62 | 0.00** |
| 65 to 79 years old | 1 | 14.82 | 0.00** |

Because of aforementioned significant three-order interaction Age Reference x Seniors' Gender x Participants' Gender within the 2 x 2 x 4 Analysis of Variance

(MANOVA), other secondary analyses were performed to investigate where the differences lay. Subsequently, 2 x 4 Seniors' Gender x Age Reference analyses of variance separately for male and female participants (see Table 18) and two 2 x 4 Participants' Gender x Age Reference analyses of variance separately for male and female drivers (see Table 19) were carried out.

Table 18

2 x 4 ANOVA for Seniors' Gender by the four Age Groups of Drivers Effect on Female and Male Participants' Attitudes about Drivers

| Source | df | F | p |
|---|---|---|---|
| Male Participants | | | |
| Age Reference | 3 | 102.05 | 0.00** |
| Seniors' Gender | 1 | 8.83 | 0.00** |
| Seniors' G x Age Reference | 3 | 4.81 | 0.00** |
| Female Participants | | | |
| Age Reference | 3 | 171.01 | 0.00** |
| Seniors' Gender | 1 | 0.01 | 0.92 |
| Seniors' G x Age Reference | 3 | 0.21 | 0.89 |

Table 19

2 x 4 ANOVA for Participants' Gender by the four Age Groups of Drivers Effect on Attitudes about Drivers

| Source | df | F | p |
|---|---|---|---|
| Male Drivers | | | |
| Age Reference | 3 | 102.34 | 0.00** |
| Participants' Gender | 1 | 0.00 | 0.99 |
| Participants' Gender x Age Reference | 3 | 0.51 | 0.67 |
| Female Drivers | | | |
| Age Reference | 3 | 167.93 | 0.00** |
| Participants' Gender | 1 | 14.07 | 0.00** |
| Participants' Gender x Age Reference | 3 | 4.69 | 0.00** |

The results revealed no significant Seniors' Gender x Age Reference interaction for female participants. However, significant Seniors' Gender x Age Reference interaction was revealed for male participants, $F(3,70) = 4.81$, $p<.01$. That explains male participants described female and male drivers differently in those four age groups. However, female participants did not differentiate between male and female drivers when describing older drivers from these four age groups. Furthermore, no significant Participants' Gender x Age Reference interaction was revealed for male drivers but for female drivers it was, $F(3,98) = 4.69$, $p<.01$. That explains female and male participants described male drivers in the same way but when describing female drivers, male and female participants showed different attitudes.

As shown earlier, significant Seniors' Gender x Age Reference interaction within the male participants (see Table 18) and Participants' Gender x Age Reference interaction within the female drivers (see Table 19) were revealed. Therefore, two one-way Analyses of Variance (ANOVA) were performed to investigate where the differences lay. The first one-way analysis of variance for male participants revealed significant effects when describing 55- to 64-year-old drivers and 65- to 79-year-old drivers but did not reveal significant effects for the two other age groups. That explains male participants described male and female drivers, 55- to 64 years old and 65- to 79 years old, differently. The second one-way analysis of variance for female drivers revealed significant effects when 55- to 64-year-old drivers, 65- to 79-year-old drivers, and 80-year-old drivers were described. That explains male and female participants had different attitudes about 55- to 80-year-old female drivers. Afterwards, paired sample t-tests were carried out separately for females and males when describing drivers. The

Table 20

One-way ANOVA for Male Participants' Attitudes about both Senior Genders

| Source | df | F | p |
|---|---|---|---|
| own | 1 | 0.56 | 0.81 |
| 55- to 64-year-old drivers | 1 | 13.44 | 0.00** |
| 65- to 79-year-old drivers | 1 | 9.75 | 0.00** |
| 80-year-old drivers | 1 | 3.50 | 0.06 |

Table 21

One-way ANOVA for Attitudes about Female Drivers by Participants

| Source | df | F | p |
|---|---|---|---|
| own | 1 | 0.09 | 0.75 |
| 55- to 64-year-old drivers | 1 | 18.62 | 0.00** |
| 65- to 79-year-old drivers | 1 | 14.82 | 0.00** |
| 80-year-old drivers | 1 | 11.27 | 0.00** |

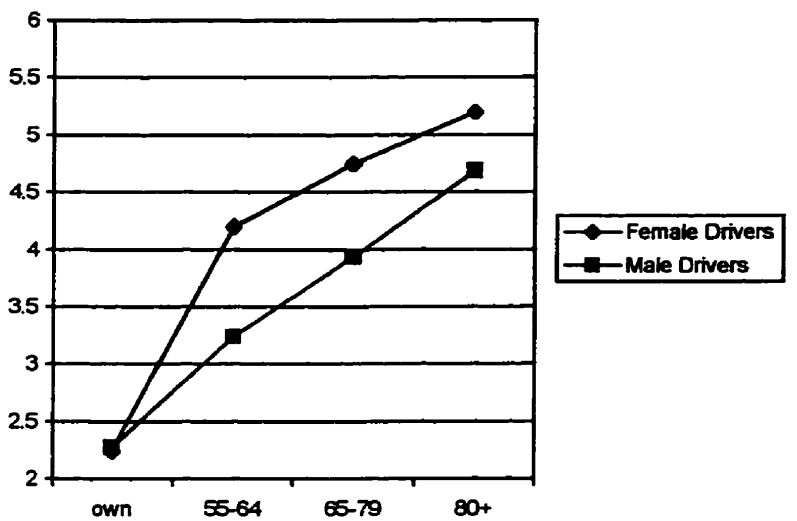


Figure 4:

Male Participants' Attitudes about the four Age Groups of Drivers.

Figure 4 shows that male participants described female drivers more negatively (higher scores) than male drivers. It also makes clear that male participants had negative

attitudes (score greater than 4) toward all three age groups of female drivers but showed no negative attitudes about 55- to 64-year-old and 65- to 79-year-old male drivers.

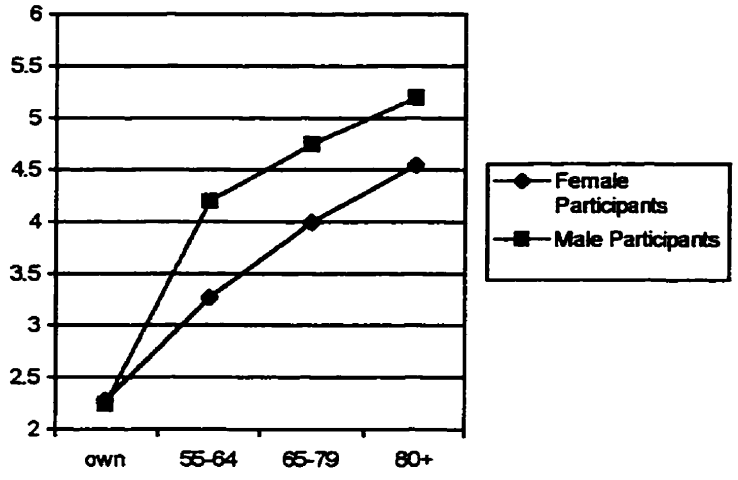


Figure 5:

Attitudes about Female Drivers. Figure 5 shows that female drivers were described by male participants more negatively (higher scores) than female participants. It also makes clear that male participants had negative attitudes (score greater than 4) toward all three age groups of female drivers but showed no negative attitudes about 55- to 64-year-old and 65- to 79-year-old drivers by the female participants. Female participants started to describe older drivers negatively at the age of 80.

Meaningful Contact, Knowledge, and Stereotyping

Stepwise Linear Regression analyses for each attitude scale were performed to determine whether the gender of the participants, the gender of the seniors, knowledge of and contact with seniors, and the course the students were in were predictors of attitudes. The variable for the course of the student had more than two categories, so this variable was recoded into a new course variable (0 = Gerontology course, 1 = all other courses). Before starting each analysis, correlation among the predictors were computed to check for multicollinearity. The suggested cut-off of r = .70 (Tabachnick & Fidell, 1996) was used. Unless indicated, the assumption was satisfied.

Table 22 shows the results of the first regression analysis. Only the gender of the participant contributed significantly to the prediction of attitudes about people 55 to 64 years of age in general, explaining two percent of the variance. Male participants described people 55- to 64-years of age more negatively than female participants.

Table 22

Stepwise Linear Regression for Attitudes about 55- to 64-year-old People in General

| Predictor Variable | B | SE B | ß |
|---|---|---|---|
| Participants' Gender | -0.23 | 0.10* | -0.15 |
| Constant | 3.71 | 0.18** | |
| R | 0.15 | | |
| $R^2$ | 0.02 | | |
| Adj. $R^2$ | 0.02 | | |

Table 23

Stepwise Linear Regression for Attitudes about 65- to 79-year-old People in General

| Predictor Variable | B | SE B | ß |
|---|---|---|---|
| Age | -0.23 | 0.09** | -0.17 |
| Constant | 4.21 | 0.16** | |
| R | 0.18 | | |
| $R^2$ | 0.03 | | |
| Adj. $R^2$ | 0.03 | | |
| Age, Participants' Gender | -0.26 | 0.11* | -0.16 |
| Constant | 4.65 | 0.24** | |
| R | 0.24 | | |
| $R^2$ | 0.06 | | |
| Adj. $R^2$ | 0.05 | | |
| Age, Participants' Gender, Knowledge | -0.10 | 0.05* | -0.15 |
| Constant | 4.94 | 0.27** | |
| R | 0.28 | | |
| $R^2$ | 0.08 | | |
| Adj. $R^2$ | 0.07 | | |

The second Stepwise Linear Regression Analysis was performed to assess prediction of the attitudes about people 65 to 79 years of age in general. Table 23 shows the results for the second analysis. The regression showed that male participants, younger participants, and those with less general knowledge had more negative attitudes about 65- to 79-year-old people than other students did. These predictors explained 7% of the variance in attitudes.

The third Stepwise Linear Regression Analysis was performed to assess prediction of the general attitudes about people 80 years or older. The results in Table 24 explain that four of the variables predicted the stereotypes toward people 80 years or older. Here, participants with a more positive view of people aged 80 years or older knew more people 80 years and older, were in the older age group (24 to 53 years old), had greater general knowledge of the older generation, and were females. The total explained variance was 15%.

The fourth Stepwise Linear Regression Analysis was performed to assess prediction of attitudes about drivers' 55 to 64 years of age from seven predictors. The predictors were participants' gender, seniors' gender, and age of the participants, the course, the participants' general knowledge of older people, their knowledge of older drivers, and their contact with drivers in this age group. Table 25 shows that three of the variables predicted the attitudes about drivers' 55 to 64 years of age. Students with positive attitudes about drivers 55 to 64 years of age were likely to be females, were likely to have described older male drivers in their questionnaires, and were likely to be from the Gerontology course (explaining 11% of the variance).

Table 24

Stepwise Linear Regression for Attitudes about 80-year-old People in General

| Predictor Variable | B | SE B | ß |
|---|---|---|---|
| Know people 80+ | -0.40 | 0.11** | -0.24 |
| Constant | 4.52 | 0.09** | |
| R | 0.25 | | |
| $R^2$ | 0.06 | | |
| Adj. $R^2$ | 0.06 | | |
| Know people 80+, Age | -0.28 | 0.10** | -0.19 |
| Constant | 5.00 | 0.18** | |
| R | 0.32 | | |
| $R^2$ | 0.10 | | |
| Adj. $R^2$ | 0.09 | | |
| Know people 80+, Age, General Knowledge | -0.15 | 0.05** | -0.18 |
| Constant | 5.41 | 0.23** | |
| R | 0.37 | | |
| $R^2$ | 0.14 | | |
| Adj. $R^2$ | 0.12 | | |
| Know people 80+, Age, General Knowledge, Participants' Gender | -0.34 | 0.12** | -0.17 |
| Constant | 6.00 | 0.31** | |
| R | 0.41 | | |
| $R^2$ | 0.17 | | |
| Adj. $R^2$ | 0.15 | | |

Table 25

Stepwise Linear Regression for Attitudes about 55- to 64-year-old Drivers

| Predictor Variable | B | SE B | β |
|---|---|---|---|
| Course | -0.73 | 0.20** | -0.24 |
| Constant | 3.95 | 0.18** | |
| R | 0.22 | | |
| $R^2$ | 0.05 | | |
| Adj. $R^2$ | 0.04 | | |
| Course, Participants' Gender | -0.44 | 0.15** | -0.19 |
| Constant | 4.72 | 0.32** | |
| R | 0.29 | | |
| $R^2$ | 0.08 | | |
| Adj. $R^2$ | 0.07 | | |
| Course, Participants' Gender, Seniors' Gender | 0.37 | 0.14* | 0.17 |
| Constant | 4.17 | 0.38** | |
| R | 0.33 | | |
| $R^2$ | 0.11 | | |
| Adj. $R^2$ | 0.10 | | |

The fifth Stepwise Linear Regression Analysis was performed to assess prediction of attitudes about drivers' 65 to 79 years of age. Table 26 shows the results of this analysis. Three of the variables predicted the attitudes about drivers' 65 to 79 years of age. These significant predictors included general knowledge, seniors' gender, and participants' gender. They explained 7% of the variance. Students with a more positive attitude about drivers 65 to 79 years of age were likely to be female, were likely to have described males in their questionnaires, and were likely to have greater general knowledge of older people.

Table 26

Stepwise Linear Regression for Attitudes about 65- to 79-year-old Drivers

| Predictor Variable | B | SE B | ß |
|---|---|---|---|
| General Knowledge | -0.18 | 0.06** | -0.19 |
| Constant | 4.63 | 0.20** | |
| R | 0.19 | | |
| $R^2$ | 0.04 | | |
| Adj. $R^2$ | 0.03 | | |
| General Knowledge, Seniors' Gender | 0.34 | 0.14* | 0.16 |
| Constant | 4.11 | 0.29** | |
| R | 0.25 | | |
| $R^2$ | 0.06 | | |
| Adj. $R^2$ | 0.05 | | |
| General Knowledge, Seniors' Gender, Participants' Gender | -0.34 | 0.14* | -0.15 |
| Constant | 4.67 | 0.37** | |
| R | 0.29 | | |
| $R^2$ | 0.09 | | |
| Adj. $R^2$ | 0.07 | | |

The last Stepwise Linear Regression Analysis was performed to assess prediction of attitudes about drivers 80 years or older. Table 27 shows that female participants, in Gerontology, who knew more competent 80-year-old drivers and who had a higher general knowledge had more positive attitudes about 80-year-old drivers, explaining 12% of the variance.

Table 27

Stepwise Linear Regression for Attitudes about 80-year-old Drivers

| Predictor Variable | B | SE B | ß |
|---|---|---|---|
| General Knowledge | -0.25 | 0.06** | -0.25 |
| Constant | 5.43 | 0.21** | |
| R | 0.26 | | |
| $R^2$ | 0.07 | | |
| Adj. $R^2$ | 0.06 | | |
| General Knowledge, Course | 0.44 | 0.20** | 0.14 |
| Constant | 4.97 | 0.26** | |
| R | 0.31 | | |
| $R^2$ | 0.09 | | |
| Adj. $R^2$ | 0.09 | | |
| General Knowledge, Course, Participants' Gender | -0.32 | 0.15* | -0.14 |
| Constant | 5.56 | 0.38** | |
| R | 0.34 | | |
| $R^2$ | 0.12 | | |
| Adj. $R^2$ | 0.10 | | |
| General Knowledge, Course, Participants' Gender, Know Competent Drivers | -0.36 | 0.18* | -0.13 |
| Constant | 5.64 | 0.38** | |
| R | 0.36 | | |
| $R^2$ | 0.13 | | |
| Adj $R^2$ | 0.12 | | |

In summary, for all Stepwise Linear Regressions, male participants were found to have more negative attitudes about older people in general and toward older drivers than did female participants. Furthermore, participants with greater general knowledge of the elderly population had more positive attitudes about them in general and as drivers.

Stereotyping and Behavior

First, the participants were asked if they had ever acted differently toward an older driver. Participants who said "Yes" were questioned about a particular situation in which they had experienced older drivers as a problem. After content analysis of the answers, two variables with several categories were developed. The first variable

described the behavior of the older person and was coded into 3 categories: 1 = they had problems handling their car and interpreting traffic signs; 2 = they were not aware of other people on the road; 3 = a combination of problems or behaviors. For example, one student talked about a situation where an older woman did not stop at a stop sign and went right through the intersection. This was coded as 1 with 16% of the responses coded this way. An example for category 2 was a situation where an older driver cut a person off and did not realize that there were other people on the road (31%). The third category included answers in which the participants described various other problems with older drivers (53%).

The second variable looked at the participants' self-reported driving behaviors. In general, there were two different kinds of reactions. Some participants reported that they were acting very patient. One participant even said that she avoids some highways because she knows older people drive there often. On the other hand, some participants reported that they were acting very negative toward older drivers. They sometimes used rude gestures or yelled. The variable was therefore coded into two categories: 1 = acted patiently and avoided problems with older drivers (39.7%); and 2 = acted negatively (60.3%). To check inter-rater reliability, 20% of the questionnaires were given to a second person that was asked to code the qualitative data again. Agreement between raters for the older drivers' behavior was 88.7% and 70.7% for the participants' self-reported behavior. The third category for the description of older drivers' behavior could have been problematic, as the label "both" indicates that not just a combination of both areas are included in this category but also descriptions which were not captured under the first two categories. It might have been easier to label the third category with

"others". Furthermore, a fourth category with the label "too slow" may have made the analysis of the data clearer.

First, correlation was performed to see whether attitudes about older people in general and as drivers related to whether participants acted differently toward them on the road. The results revealed no significant correlation between the behavior variable and the three attitude scales of older people in general ($r = -.116$; $r = -.053$; $r = -.082$; with $p > .05$). However, the results showed small but significant correlation between the behavior variable and the three attitude scales of older drivers ($r = -.182$; $r = -.228$; $r = -.191$; with $p < .01$). The negative correlation demonstrates that people who held negative attitudes about older drivers reported acting differently toward them.

Correlation was performed to identify relationships between the drivers' behavior and the contact variables. The behavior of young drivers showed a relationship to the number of competent drivers 80 years or older they knew ($r = -.266$, $p < .05$) and the number of people aged 80 and over they knew ($r = -.241$, $p < .05$). Participants who knew more persons and more drivers 80 years of age and over reported acting more patiently with older drivers.

Additionally, cross tabulations were run with the three seniors' categories driving behavior. Behavior of the elderly drivers was independent from most variables, including the seniors' gender and the gender of the participants. However (see Table 28), older drivers' behavior was associated with the age of the participants ($\chi^2 = 11.08$, $p < .05$).

Table 28

Cross-tabulation for Participants' Age by Older People's Driving Behavior

| | 18 to 19 years of age | 20 to 23 years of age | 24 years or older |
|---|---|---|---|
| problems handling their car | 9.1% | 13.7% | 50.0% |
| not aware of other people | 39.4% | 27.5% | 20.0% |
| combination of both | 51.5% | 58.8% | 30.0% |

## A Summary of Key Results

1. Overall, the young people who completed the questionnaire displayed a somewhat neutral to positive attitude about older people in general. Even though the mean attitude scores for adults 80 years of age and older were greater than four, the scores were still less than five on the seven-point scale. Thus, the young respondents displayed no major negative attitudes, however, they did describe themselves significantly more positively than the three older age groups. Similarly, in the Factor Analyses, people 55 to 79 years of age were described as happy, but old fashioned. To the participants, the age of 80 seemed to be critical. People from this age group were seen as unproductive, dependent and passive. The attitudes about older drivers were somewhat different. The participants described 55- to 64-year-old drivers as fully functioning and good drivers. However, this changed radically when analyzing the attitudes about 65- to 79-year-old drivers, since the young people thought that these drivers were unpleasant, unskilled, dangerous, inattentive, and drove at inappropriate speeds. Drivers 80 years and older were described even more negatively. The participants perceived them to be not only unpleasant to share the road with but also

dangerous. When comparing general attitudes and the attitudes about older drivers, differences in both groups became very clear. Interestingly, in general, older people were described more positively than older drivers were. The Factor Analyses also proved that the attitudes about drivers changed much earlier than general attitudes. Thus, the results indicated that attitudes about older people were situation specific.

2. Both the gender of the participants and the gender of the old people played a role. First, young females had more positive attitudes about the older generation than males in general and in driving. Second, male participants described female drivers much more negatively than male drivers.

3. In this research, the younger participants' self-reported behavior was related to the number of people 80 years and older and the number of competent drivers they knew. These data showed that participants who knew more people and drivers from this age range were more likely to report that they acted patiently toward older drivers on the road. Also, many of the participants (60.3%) reported that they acted negatively (impatient) toward older people on the road. However, no gender effect was found for this variable.

4. While significant, the results showed that knowledge and contact had only a small effect on attitudes. However, the results support the hypothesis that knowledge of the aging process and contact with the older generation has a positive effect on attitudes held by the younger people.

## Discussion

The traffic environment is very complex, several factors must be considered when assessing risks on the road. Not only are a person's driving performance important, but also the interactions between drivers and other people on the road. Young and old, rich and poor, black and white people share the highways, which are an environment just like any other place in a society where different generations co-exist. As different generations have different expectations and understandings of life and of each other, conflicts are unavoidable. One of the main reasons for misunderstandings among generations is the attitude one person has toward another person.

### Attitudes about Older People in General and about Older Drivers

It was pointed out in the theory part of this paper that changes in later life are not affected by the individual's chronological age but rather by the health status of the elderly person. It seems that in this research the younger people realized that older people in general could not be described negatively just because of their membership in a certain age group. Life expectancy has increased over the last several decades and people tend to stay healthy, active, and independent for a longer time (Novak, 1995); this trend may have influenced how younger people described the older generation. Additionally, the proportion of older people is increasing every year and with this increase, fewer stereotypes will be directed toward them, as they will not be a minority in the future. Thus, stereotypes are less likely to be attached to people we know and to something we hear or read, and with this change, younger people will be more likely to

know someone from the older generation and, therefore, will have fewer negative attitudes about them (Sherman, 1996).

Moreover, it was proved by Braithwaite (1996) that negative attitudes about the elderly population was related to fear of aging. Bearing this in mind, one can assume that by modifying younger people's attitudes about the aging population, their fears of getting older would also be minimized. In this research, the students may have realized that aging is not something they should be afraid of. Furthermore, these changes could have also worked in the opposite direction. This means that by reducing younger people's fears of aging, negative attitudes were challenged and reduced.

On the other hand, when describing older drivers, the young participants may have concentrated more on psychomotor changes in later life than on the older people ability to drive. This finding is critical because attitudes at the individual level will further influence how society as a whole treats the older generation specifically as drivers (Cowgill & Holmes, 1972). Why is it that older drivers were described in a negative way at an earlier age than older people were in general?

Older drivers are a specific part of the general population, however, participants tended to differentiate between older drivers and older people in general. Looking at the theory of "paternalism," one can conclude that, especially in the traffic environment, ethical issues may come into play. For instance, younger drivers may feel restricted by older drivers' as they seem to be a danger to other road users. The younger generation, therefore, wants to "help" older drivers by taking their driver's license away. Furthermore, in most of the areas of general life, younger people are able to avoid the older generation. However, in the traffic environment, younger people have to cope with

older people and they may feel threatened by them. Additionally, stereotypes toward groups also depend on which group is used as a reference point (Ford & Stangor, 1992). Yzerbyt, Rocher and Schadron (1997) pointed out that people have specific beliefs in certain social contexts. Bearing this in mind, one can presume that the younger participants, when describing the older generation, had themselves in mind as a general group for comparison. However, when describing older drivers, the younger participants differentiated between themselves as drivers and the older drivers' generation. As mentioned earlier, while stereotyping, people distinguish themselves from others (McCauley, Stitt, & Segal, 1980). Individuals tend to put their own group in a better perspective than other groups. This could explain why older people in general and older drivers were perceived differently. Subsequently, when looking at accident statistics, one must realize that younger people are more likely to be involved in an accident. In order to put themselves in a better light, they had to describe older drivers even more negatively. That would explain the differences in attitudes about the general population as compared with older drivers.

In contrast, thinking about the reasons for someone's attitudes may bring the person to change his or her attitude about the object (Tesser & Schaffer, 1990). That could be another explanation for the mostly positive attitudes about the older generation in this research. When asking the younger people about their attitudes about people 55-years and older, they may have changed their perception of them, even though they had negative attitudes about them before filling out the questionnaire. However, this would mean that in all research, when asking people about their attitudes, positive results should have been revealed. Thus, the present findings may indicate that attitudes about the older

generation have changed over the last few decades as most of the cited research was done more than two decades ago.

It is important to prove if the attitudes were based on facts or beliefs. Looking at the driving statistics, one must recognize that, in general, with increasing age the number of car accidents does not increase (Millar & Adams, 1991). So, when describing older drivers, younger participants should not have embodied negative attitudes such as "dangerous"; their attitudes, therefore, were not based on facts, but on beliefs or opinion. However, when taking into account the number of car accidents per kilometer driven, the older generation is involved in more accidents. Therefore, the negative attitude about older drivers could be based on facts, too. On the other hand, the description of older drivers as being inattentive corresponds with the findings from the research of Hakamies-Blomqvist (1994) where attentive problems were identified as the leading cause of car accidents for women in general.

Participants' Gender, Seniors' Gender, and Attitudes

In this research, a correlation between the participants' gender and attitudes was revealed. These results correspond with many findings from other research (Braithwaite, 1996; Wingard, Heath, & Himmelstein, 1982; Drevenstedt & Banzinger, 1977). In the author's opinion, there are many potential explanations for this phenomenon. First of all, females are usually more tolerant of minorities, as they are seen as a minority also. Thus, they tend to feel connected to the problems older people encounter. For instance, society often judges people by their productivity within the society (their jobs). However, caring for children, or in this case a senior caring for grandchildren, is not seen as a productive

activity. Caregivers are often not appreciated for what they are doing, because they do not "produce" anything. On the other hand, both genders are affected by their instincts (McDougall, 1908). While males tend to live life according to the philosophy of survival of the fittest, older people are sometimes not as fit as their younger counterparts. Hence, males tend to have negative attitudes about them. Furthermore, by instinct, females tend to care for others, so they perceive older people in a more positive way (Wilson, 1975).

The findings also correspond to the fact that older women in today's society are still described in a more negative way than men (Lehr & Niederfranke, 1991). In their younger years women often have to fulfill many social roles, plus they are often caregivers for their children, spouses, and many have to work. In their middle years, women usually lose their ability to reproduce and, after retirement, most of them lose their social roles as caregivers and workers. When they become widows they will also lose their social role as wives, and this is expected as the life expectancy of females is much higher than that of males (Statistics Canada, 1991). Many people interpret the loss of social roles as leading to perceptions of uselessness and unproductiveness. Negative stereotypes may, in turn, result in seeing a person as useless. These facts may affect young people's attitudes about older women. On the other hand, the description of older males is usually more positive because they often maintain their social roles much longer than females. For instance, older males are generally able to reproduce until a much older age and they can be very productive in their jobs even in later years. Likewise, many politicians (mostly males) reach old age before they retire, or they may not retire at all, as is the case with the Canadian Senate. Indeed, it is interesting to notice how differently the genders are perceived in older age. However, it needs to be noted that

many differences in social roles and perceptions of genders can be found even among younger age groups.

Connecting the social roles of females and males to the driver's environment, one must realize that females are still less represented in the driving population than men are (Statistics Canada, 1991). However, demographics show that the proportion of older female drivers will change drastically in the future. Today, females are licensed almost as often as males, and in the decades to come, these females will comprise a larger proportion than men will. More older women drivers may further change younger people's attitudes about the older female driving population, as they will not be a minority in the future.

By comparing seniors' gender to traffic statistics, it can be seen that the differentiation between male and female drivers is also based on facts. Research shows that older women have the highest crash rate among females and, in contrast, retired men have the lowest crash rate among males. Furthermore, among seniors 70% of car accidents involve women (Millar & Adams, 1991).

Despite the fact that older females are more likely to be involved in accidents than older males, statistics show that males between 15 and 24 years of age are at the highest risk to be involved in a car accident. As mentioned earlier, stereotypes usually involve one group seeing themselves more positively than another (stereotyped group). It is self-evident that male participants belong to the group with the highest crash rates, so they have to describe other drivers even more negatively to put themselves in a more positive light. Additionally, in this research no gender effect on knowledge was revealed, so male and female participants should have had the same attitudes about the older

generation. However, that was not the case, so that one can assume that male participants did not base their attitudes on facts but rather portrayed a more negative and perhaps abusive attitude against older female drivers.

Even when implementing the retesting policy, policy-makers should be aware of gender differences in attitudes about the older generation. This means that not just males in general are more likely to hold negative attitudes about older people and older drivers, but also that older female are more likely to be described in a negative way by males. These facts lead to the conclusion that the gender of the test-taker and of the person giving the test would influence which people are singled out for retesting. More precisely, an 80-year-old female driver being retested and questioned by a male officer would have a higher chance of being rejected for a renewal than an older male questioned by a female officer.

These results indicate that males especially have to be educated about other people's driving abilities. Many countries such as Germany has made driving courses, including theoretical lessons and lessons on the road, mandatory. However, in Canada, driving courses are optional for all genders, so that a person can get a driver's license without taking any courses. This should be a major concern for those responsible for traffic safety, as many people are not educated about problems on the road. Furthermore, by making driver's courses compulsory for both genders, younger and older participants can be informed about the declining abilities or changes in later life which can affect somebody's driving performance. This is not strictly of importance for older drivers, but also for other road users who need to know about other drivers' difficulties so as to behave more safely toward them.

Attitudes and Behavior

Even though the driving behavior of the participants was not directly related to their attitudes about the older generation and toward older drivers, it is assumed that by changing someone's attitudes, behavior can be influenced to some extent (Ford & Stangor, 1992; Butler, 1980; Katz, 1976). The results point to several suggestions for society, for policy-makers, and for other driver generations on the road. Some of these suggestions can be applied to any driver while others are specifically applicable to policy-makers.

First of all, younger drivers should not follow too closely, as everyone becomes nervous when someone follows them too closely. As stated earlier, when older drivers are on the road, they are more likely to have an accident than drivers of other age groups. Following too closely may distract the older driver's attention from the road; this situation increases the chances of an accident taking place. It is also important to show common courtesy when driving. Younger drivers should try to avoid honking their horns, making obscene gestures, and/or flashing their high beams. These practices increase driving anxiety and may widen the gap between older and younger drivers. Furthermore, drivers of all age groups should avoid traveling with their high beams on at night because elderly people are more sensitive to glare and could suffer from temporary blindness (Owsley, et al., 1991). It is important to get a sense of the total picture of driving and to learn to avoid potentially dangerous situations by taking a defensive driving course. Every driver should drive slowly in high traffic areas because this is where the older adult's reduction in the UFOV is likely to manifest itself due to a great deal of movement taking place at once, thereby creating potentially dangerous driving situations. The issue

of licensing eligibility should not be based exclusively on information obtained from young observers, as age prejudice may affect decision-making. Intergenerational conflict in policy making can be avoided by including both young and old people in information gathering and analysis and in the establishment of policy. It must be communicated that older people have some critical needs for driving. So, we should be more tolerant.

Meaningful Contact, Knowledge, and Attitudes

The results support the view that the participants' frequency and quality of contact with the older generation affect positive attitudes about older people. These results imply that, by bringing different generations together, negative attitudes can be somewhat improved. Especially today, where young and old sometimes live separated from each other, it would be of importance to have intergenerational groups, wherein younger and older people would get to know each other better and learn more about their respective problems. This intergenerational familiarity should not be limited to young participants. It also applies to elderly people who need to learn about younger people's problems and their outlook on life.

Knowledge of older drivers did not have a great impact on the participants' attitudes about the older generation. A potential explanation for this is that most of the younger participants did not have specific knowledge of older people on the road. The data showed that out of seven, on average, just half of the questions were answered correctly by the participants. In this sense, the specific knowledge questions were not correctly answered by many participants and perhaps were too difficult. Because the participants had less knowledge of older drivers than the aging process in general, this

could explain why driving attitudes were more negative. It has to be pointed out again that driver education programs are critical. Education about the problems older people face when driving may change the attitudes that younger people hold toward older drivers and therefore may influence their behavior toward older drivers on the road; this is especially important for young males.

## Conclusion

The growth of the older population in Canada, and in the whole world, has made aging a major social issue. Because of their increasing numbers, older people will shape and influence society in the future. Politicians and policy-makers must recognize these changes in the population structure and find new ways to solve problems concerning the overflow of the older generation. This includes not just policies involving increasing numbers of seniors but also increasing life expectancies and higher standards of living among the older population. One example of changing policy in Ontario is the new driver's retesting program, which is intended to improve older people's lives. The Ontario Ministry of Transportation introduced this new policy in the fall of 1996. The mandatory road test for senior drivers has been removed from the retesting program, so that only a limited number of seniors need to prove their driving skills in order to maintain their privilege to drive.

The new retesting policy may cause people to assume that, at a certain age, people are no longer able to drive. Policies regarding driving should not be based on age but rather on the health status of the person or his or her ability to perform the tasks of

driving well (see "GULHEMP Scale"; in Novak, 1995). As noted earlier, the older generation is the most heterogeneous group (Novak, 1995); this should lead to a change in policies affecting driving. However, when looking at the driving statistics, one must recognize that older people are less involved in car accidents than younger people, but, when considering the kilometers driven, older people are involved in the most car accidents. The promotion of driving shorter distances and using public transportation when going on a longer trip should therefore be a big concern when addressing older people's driving needs.

Policy-makers should recognize that old age itself is not an accurate indication that driving privileges should be removed. Instead, it is chronic disease and cognitive impairment that make driving hazardous. However, as long as the older person remains free of an impaired condition, there is no reason why he or she should not drive without restriction. Garfein and Herzog (1995) noted that reasoning abilities could be maintained well into the senior years, whereas speed of processing information typically decreases with age. The point at which an impaired condition makes driving hazardous is difficult to determine and varies greatly from one person to another.

Hopefully, most older drivers will not have to consider the options that arise when their license is revoked. It is much more important for us as a society to focus our attention on keeping older drivers behind the wheel through policies and programs. This will minimize the psychosocial problems and transportation dilemmas that accompany the loss of one's driving privileges.

As older adults are the fastest growing segment of the population, the mobility and safety of elderly drivers are of great concern. It is anticipated that by the year 2000,

28 % of the driving population will be 55 years and over (Persson, 1993). The highest crash rates per kilometer occur among the youngest and the oldest age groups. This demonstrates that an average kilometer driven by a member of one of these two groups is more dangerous than an average kilometer driven by a member of an intermediate age group. This should therefore lead to the conclusion that very young and very old drivers should be asked to use their vehicles for driving shorter distances, but when planning a longer trip they should rather use public transportation.

Most older drivers are aware of their declining abilities and, therefore, adjust driving habits accordingly (e.g., fewer kilometers, shorter distances, slower speeds, avoid driving at night and in bad weather); these trends increase with age (Odenheimer et al., 1994). Many voluntarily give up driving entirely following a serious illness (Marottoli et al., 1993). To a large degree, self-regulation by older drivers appears effective as they balance the demands of driving with their functional limitations. In support of these findings, some of the attitudes about older drivers are not based on reality since many older people give up driving when they realize they are having problems.

Keeping older people behind the wheel is not just a social issue but an important ethical one as well. Paternalistic actions like deciding if an older person is able to drive should be stopped. Every individual has the right to maintain his or her independence no matter what age he or she is.

This paper has looked at the attitudes that younger people hold toward the older generation in general and toward older drivers in particular. The data showed that negative attitudes about the older generation and toward older drivers do not exist. However, it was proved that females were more likely to have more positive attitudes

about the older generation and that older males were more likely to be described in a more positive way than older females. Additionally, knowing older people, maintaining qualitative positive contact with the older generation, and increasing personal knowledge of the aging process and older people can lead to a small extent to more positive perceptions of older people. Finally, positive attitudes incline people not to differentiate drivers by their age but rather by their driving performance.

## Limitations and Future Research

While stereotyping has been studied for many years, there is just one article available on stereotyping within the traffic environment. Because of this limitation, it was necessary to develop specific questionnaires concerning younger people's attitudes about older drivers. The invention of a specific Likert Scale for attitudes regarding the ability to drive may have caused some misunderstanding in the analysis of the data. These problems, which include not choosing the most important attributes or using attributes based on facts rather than on stereotypes, may have led to wrong answers. It is not clear whether the participants' based their attitudes about older drivers on the fact that older females are involved in more accidents than drivers from other age groups, or if the participants really showed negative beliefs about them.

Major consideration of the knowledge questions is likewise necessary. Many of the students were unable to answer the questions, even though the questions offered two possible responses. It is not clear why most of the participants had problems finding the right answers but the research suggests that education is important.

Another problematic area involved formulation of the behavior questions. It took a long time to consider all possibilities and to come up with effective questions. Selecting open-ended questions was expected to widen answers. When using a long questionnaire, people often lose their interest and try to answer as quickly as possible. They start to cut back their answers, specifically those for which they have to come up with ideas. However, it was mentioned to the participants that this area was of major concern and that they should try to answer as comprehensively as possible.

The attitude scales measuring the attitudes about drivers were developed specifically for this kind of assessment. Looking at the attributes considered by the scales, one recognizes that most of them were taken from other research, which identified stereotypes toward older people. For instance, consider the attribute "for the conditions their driving speed is usually appropriate/inappropriate" was one of the biggest concerns of the young participants who answered the open-ended question about older people's driving behaviors. By answering such questions, the participants could have been forced to answer in a specific way. On the other hand, other research (Ellinghaus, Schlag, & Steinbrecher, 1990) showed that younger drivers often drive too fast and think that older people are slow drivers, even when the older person drives at the speed limit. A very good example of stereotyping is the pair of attributes skilled/ unskilled. Generally, older drivers have driven for a longer period of time than their younger counterparts. Research explains that driving skills increase with practice. Therefore, older drivers should have stronger skills than younger drivers. However, at some age, loss of function cannot be compensated for by better skills (i.e., being inattentive) so that some older people become a danger on the road. It is at this juncture that new ways have to be found in

order to identify older people at risk and to let those people keep their independence who do not have problems driving their car.

Keeping the gap of facts and beliefs in mind, one has to realize that in order to identify the bases of attitudes, other data analyses specifically concerning the relation between facts and beliefs on attitudes need to be done. However, that would go beyond the focus of this thesis, but could be looked at in subsequent research. Furthermore, cultural differences among older people concerning their life expectancy, their right to drive, and differences in the traffic environment, have been identified, suggesting that future research should concentrate on cultural aspects of stereotyping within the traffic environment. By pinpointing cultural differences in existing driving policies and their relationship to accident statistics in those countries, policy-makers may be able to learn from different countries and their driving practices and makes driving safer for all of us.

Despite these restrictions and shortcomings, many interesting findings surfaced from this research. And this study was able to bring attention to a number of suggestions for policy-makers and society as a whole in order to make driving safer for everybody.

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# Appendix

Questionnaire ("Example")

# QUESTIONNAIRE

## "Consent Form"

I am a Masters student in the Human Development Program at Laurentian University. I am doing my research on "Young Adults' Attitudes about Older Drivers." Through this study, I hope to better understand the attitudes that the general population has toward older drivers. It is meaningful to understand these attitudes because they can affect how people act on the road and in everyday life.

It is important for you to understand that all of your answers will be kept completely confidential. To guarantee this, do not put your name on the questionnaire! As a further guarantee of confidentiality, the information from questionnaires will only be reported in the form of group responses; no individual response will ever be identified.

When you are completing this questionnaire, if you should find that a particular question really bothers you, please leave it blank. You will approximately need 30 minutes to fill out the questionnaire. I hope that you will make the effort to participate fully in this project, but, if for any reason you feel that you do not wish to do so, you may withdraw at any time.

If you have any further questions you can call my advisor Dr. Alan Salmoni in the School of Human Kinetics at Laurentian University, 675-1511 (ext. 1046).

Thank you for your cooperation and assistance.

Birgit Huebscher

## GENERAL QUESTIONS

1. **What is your date of birth?** ☐☐ ☐☐ ☐☐
   day month year

2. **Are you:** *(Put an "X" in the box that applies to you)* male ☐ female ☐

3. **Are you:** single ☐ married ☐ divorced ☐

*Listed below are a series of polar adjectives accompanied by a scale. Place a check mark (X) along the scale in a box, which in your judgment best describes yourself. Make each item a separate and independent judgment. Do not try to remember how you have marked earlier items even though they may seem to have been similar. It is your first impression or immediate feeling about each pair of adjectives that is wanted. For example:*
*If you felt that one end of the scale is* ***very closely related*** *to how you would describe yourself, you might place your check mark as follows:*

| | very closely related | quite closely related | slightly related | both sides equally related | slightly related | quite closely related | very closely related | |
|---|---|---|---|---|---|---|---|---|
| *progressive* | | | | | | | X | *old-fashioned* |

*If you felt that one side of the scale is* ***quite closely related*** *to how you would describe yourself, you might check as follows:*

| | very closely related | quite closely related | slightly related | both sides equally related | slightly related | quite closely related | very closely related | |
|---|---|---|---|---|---|---|---|---|
| *progressive* | | X | | | | | | *old-fashioned* |

*If you felt that one side of the scale is only* ***slightly related*** *to how you would describe yourself, you might check as follows:*

| | very closely related | quite closely related | slightly related | both sides equally related | slightly related | quite closely related | very closely related | |
|---|---|---|---|---|---|---|---|---|
| *progressive* | | | X | | | | | *old-fashioned* |

*If you considered both sides of the scale* ***equally related****, you would check the middle box on the scale:*

| | very closely related | quite closely related | slightly related | both sides equally related | slightly related | quite closely related | very closely related | |
|---|---|---|---|---|---|---|---|---|
| *progressive* | | | | X | | | | *old-fashioned* |

**4. How would you describe yourself?**

| | very closely related | quite closely related | slightly related | both sides equally related | slightly related | quite closely related | very closely related | |
|---|---|---|---|---|---|---|---|---|
| progressive | _ | _ | _ | _ | _ | _ | _ | old-fashioned |
| dependent | _ | _ | _ | _ | _ | _ | _ | independent |
| unproductive | _ | _ | _ | _ | _ | _ | _ | productive |
| busy | _ | _ | _ | _ | _ | _ | _ | idle |
| insecure | _ | _ | _ | _ | _ | _ | _ | secure |
| passive | _ | _ | _ | _ | _ | _ | _ | active |
| cooperative | _ | _ | _ | _ | _ | _ | _ | uncooperative |
| organized | _ | _ | _ | _ | _ | _ | _ | disorganized |
| sad | _ | _ | _ | _ | _ | _ | _ | happy |
| friendly | _ | _ | _ | _ | _ | _ | _ | unfriendly |
| certain | _ | _ | _ | _ | _ | _ | _ | uncertain |
| intolerant | _ | _ | _ | _ | _ | _ | _ | tolerant |

**HERE ARE SOME QUESTIONS ABOUT YOU AS A DRIVER.**

**5a. Do you have a valid driver's license?**

Yes _
No _

*If you answered the last question with "No," skip to question 6a.*

**5b. How many years have you driven?**

_ _
No. of years

**5c. How often do you drive?**

daily _
weekly _
monthly _
yearly _

**5d. Approximately how many kilometers do you drive per year?**

less than 3000 km _
3000 - 7,999 km _
8000 - 12,999 km _
13,000 - 17,999 km _
more than 17,999 km _

**6. How would you describe yourself as a driver?**

| | very closely related | quite closely related | slightly related | both sides equally related | slightly related | quite closely related | very closely related | |
|---|---|---|---|---|---|---|---|---|
| skilled | | | | | | | | unskilled |
| discourteous | | | | | | | | courteous |
| For the conditions my driving speed is usually | | | | | | | | |
| appropriate | | | | | | | | inappropriate |
| dangerous | | | | | | | | safe |
| inattentive | | | | | | | | alert |
| clear thinking | | | | | | | | confused |

**THE NEXT QUESTIONS CONCERN YOUR OPINION ABOUT OLDER WOMEN/ MEN.**

**7a. How would you describe women/men 55 to 64 years of age?**

| | very closely related | quite closely related | slightly related | both sides equally related | slightly related | quite closely related | very closely related | |
|---|---|---|---|---|---|---|---|---|
| progressive | | | | | | | | old-fashioned |
| dependent | | | | | | | | independent |
| unproductive | | | | | | | | productive |
| busy | | | | | | | | idle |
| insecure | | | | | | | | secure |
| passive | | | | | | | | active |
| cooperative | | | | | | | | uncooperative |
| organized | | | | | | | | disorganized |
| sad | | | | | | | | happy |
| friendly | | | | | | | | unfriendly |
| certain | | | | | | | | uncertain |
| intolerant | | | | | | | | tolerant |
| Being together with them | | | | | | | | |
| is pleasant | | | | | | | | unpleasant |

**7b. How would you describe women/men 65 to 79 years of age?**

| | very closely related | quite closely related | slightly related | both sides equally related | slightly related | quite closely related | very closely related | |
|---|---|---|---|---|---|---|---|---|
| progressive | | | | | | | | old-fashioned |
| dependent | | | | | | | | independent |
| unproductive | | | | | | | | productive |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| busy | | | | | | | | idle |
| insecure | | | | | | | | secure |
| passive | | | | | | | | active |
| cooperative | | | | | | | | uncooperative |
| organized | | | | | | | | disorganized |
| sad | | | | | | | | happy |
| friendly | | | | | | | | unfriendly |
| certain | | | | | | | | uncertain |
| intolerant | | | | | | | | tolerant |
| Being together with them is pleasant | | | | | | | | unpleasant |

**7c. How would you describe women/men 80 years of age and older?**

| | very closely related | quite closely related | slightly related | both sides equally related | slightly related | quite closely related | very closely related | |
|---|---|---|---|---|---|---|---|---|
| progressive | | | | | | | | old-fashioned |
| dependent | | | | | | | | independent |
| unproductive | | | | | | | | productive |
| busy | | | | | | | | idle |
| insecure | | | | | | | | secure |
| passive | | | | | | | | active |
| cooperative | | | | | | | | uncooperative |
| organized | | | | | | | | disorganized |
| sad | | | | | | | | happy |
| friendly | | | | | | | | unfriendly |
| certain | | | | | | | | uncertain |
| intolerant | | | | | | | | tolerant |
| Being together with them is pleasant | | | | | | | | unpleasant |

**8a. How many women/men from the following age groups do you know quite well** ***(By "quite well" we mean women/men to whom you feel close and whom you can count on for support)*****?**

| | 0 | 1-5 | 6-10 | 10+ |
|---|---|---|---|---|
| 55-64 years of age | | | | |
| 65-79 years of age | | | | |
| 80 years and older | | | | |

**8b. On average, how frequently per month do you have contact with these women/men?**

| | 1-5 | 6-10 | 10+ |
|---|---|---|---|
| 55-64 years of age | | | |
| 65-79 years of age | | | |
| 80 years and older | | | |

**THE NEXT QUESTIONS LOOK AT YOUR RELATIONSHIP TO OLDER FEMALE/ MALE DRIVERS.**

*On October 28, 1996, the Ontario Ministry of Transportation introduced a new policy concerning the retesting regulations for older drivers. Under the new system, senior drivers must complete a vision test, a knowledge test and must take part in a group education session. A small number of drivers will be required to take a road test to have their in-car skills assessed.*

**9. At what age do you think the testing of older female/male drivers should begin?**

65 ☐
70 ☐
75 ☐
80 ☐
85 ☐

**10a. Do you think, older female/male drivers should take a vision test?**

Yes ☐
No ☐

**10b. Briefly explain!**

.....

.....

**11a. Do you think, older female/male drivers should take a knowledge test?**

Yes ☐
No ☐

**11b. Briefly explain!**

.....

.....

**12a. Do you think, older female/male drivers should take part in a group education session?**

Yes ☐
No ☐

**12b. Briefly explain!**

.....

.....

**13a. How would you describe the driving behavior of female/male drivers 55 to 64 years of age?**

| | very closely related | quite closely related | slightly related | both sides equally related | slightly related | quite closely related | very closely related | |
|---|---|---|---|---|---|---|---|---|
| skilled | | | | | | | | unskilled |
| discourteous | | | | | | | | courteous |
| For the conditions my driving speed is usually | | | | | | | | |
| appropriate | | | | | | | | inappropriate |
| dangerous | | | | | | | | safe |
| inattentive | | | | | | | | alert |
| clear thinking | | | | | | | | confused |
| Sharing the road with them | | | | | | | | |
| is pleasant | | | | | | | | unpleasant |

**13b. How would you describe the driving behavior of female/male drivers 65 to 79 years of age?**

| | very closely related | quite closely related | slightly related | both sides equally related | slightly related | quite closely related | very closely related | |
|---|---|---|---|---|---|---|---|---|
| skilled | | | | | | | | unskilled |
| discourteous | | | | | | | | courteous |
| For the conditions my driving speed is usually | | | | | | | | |
| appropriate | | | | | | | | inappropriate |
| dangerous | | | | | | | | safe |
| inattentive | | | | | | | | alert |
| clear thinking | | | | | | | | confused |
| Sharing the road with them | | | | | | | | |
| is pleasant | | | | | | | | unpleasant |

**13c. How would you describe the driving behavior of female/male drivers' 80 years or older?**

| | very closely related | quite closely related | slightly related | both sides equally related | slightly related | quite closely related | very closely related | |
|---|---|---|---|---|---|---|---|---|
| skilled | | | | | | | | unskilled |
| discourteous | | | | | | | | courteous |
| For the conditions my driving speed is usually | | | | | | | | |
| appropriate | | | | | | | | inappropriate |
| dangerous | | | | | | | | safe |
| inattentive | | | | | | | | alert |
| clear thinking | | | | | | | | confused |
| Sharing the road with them | | | | | | | | |
| is pleasant | | | | | | | | unpleasant |

**14a. How many female/male drivers from the following age groups do you know quite well *(By "quite well" we mean female/male drivers to whom you feel close and whom you can count on for support)*?**

| | 0 | 1-5 | 6-10 | 10+ |
|---|---|---|---|---|
| 55-64 years of age | ☐ | ☐ | ☐ | ☐ |
| 65-79 years of age | ☐ | ☐ | ☐ | ☐ |
| 80 years and older | ☐ | ☐ | ☐ | ☐ |

**14b. Of the older female/male drivers you know, how many are competent drivers?**

| | 0 | 1-5 | 6-10 | 10+ |
|---|---|---|---|---|
| 55-64 years of age | ☐ | ☐ | ☐ | ☐ |
| 65-79 years of age | ☐ | ☐ | ☐ | ☐ |
| 80 years and older | ☐ | ☐ | ☐ | ☐ |

**15a. Have you ever acted differently toward a female/male driver aged 65 or over?**

Yes ☐
No ☐

**15b. Describe one example of what the older person was doing and how you acted differently in this situation! Be as specific as possible!**

.....

.....

.....

.....

.....

**THE FOLLOWING QUESTIONS WILL LOOK AT YOUR KNOWLEDGE OF ELDERLY PEOPLE AND THE AGING PROCESS IN GENERAL.**

**16. How many persons over the age of 65 do you think are <u>receiving help</u> with at least one activity, including grocery shopping, housework, meal preparation, yard work, managing money, and personal care?**

40% ☐
**80%** ☐

**17. How many persons over the age of 65 do you think are <u>satisfied with their health</u>?**

40% ☐
**80%** ☐

**18. What percent of Canada's population (65 years and older) has <u>arthritis</u>?**

**40%** ☐
80% ☐

**19. What percent of Canada's population (65 years and older) suffers from dementia (mental illness)?**

**10%** ☐
30% ☐

**20. What percent of Canada's senior population (65- to74 years) reports chronic pain?**

10% ☐
**30%** ☐

**21. What percent of Canada's senior population (65 years and older) shows depression?**

**5%** ☐
35% ☐

**THE FOLLOWING QUESTIONS WILL LOOK AT YOUR KNOWLEDGE OF DRIVERS 65 YEARS OF AGE AND OVER.**

**22. In general, which of the two characteristics of vision is problematic for drivers 65 years and over?**

Day time vision ☐
**Glare** ☐

**23. In general, which of the two physical characteristics is problematic for drivers 65 years and over?**

Reaction time to expected events ☐
**Flexibility of the neck** ☐

**24. Do drivers 65 years and older have proportionally more accidents than all other drivers?**

Yes ☐
**No** ☐

**25. Do drivers 65 years and older have a higher frequency of injuries from car accidents than other age groups?**

Yes ☐
**No** ☒

**26. Which age group is involved in the most car accidents per year?**

**15-24 years** ☐
80 and over ☐

**27. Which age group is involved in the most car accidents per kilometer driven?**

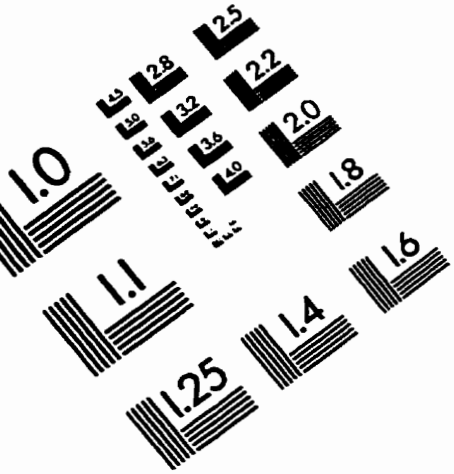
15-24 years ☐
**80 and over** ☐

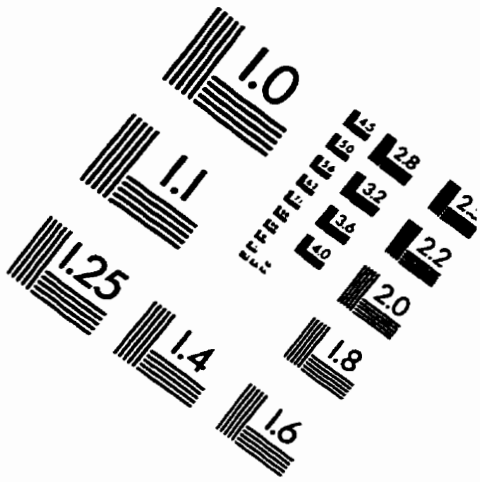
**28. Which age group is most likely to be injured in the traffic environment?**

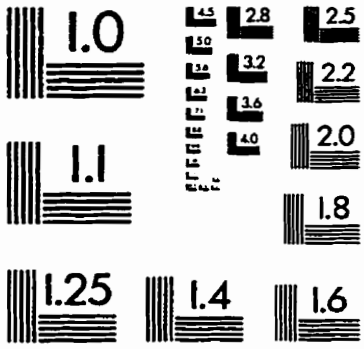
15-24 years ☐
**80 and over** ☐

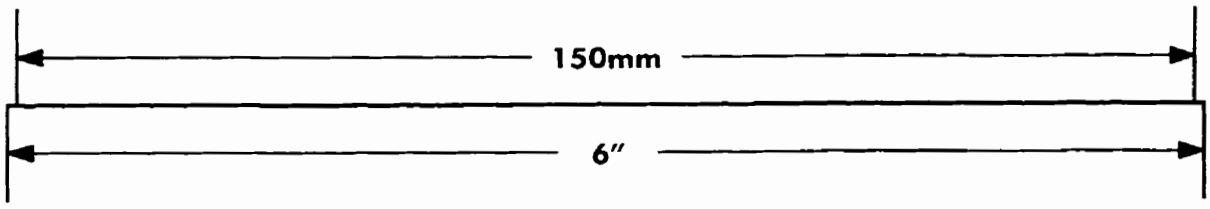
**THANK YOU VERY MUCH FOR CAREFULLY ANSWERING THE QUESTIONS.**

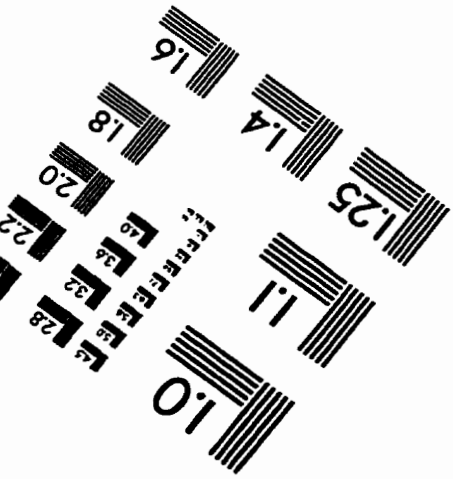
IMAGE EVALUATION
TEST TARGET (QA-3)

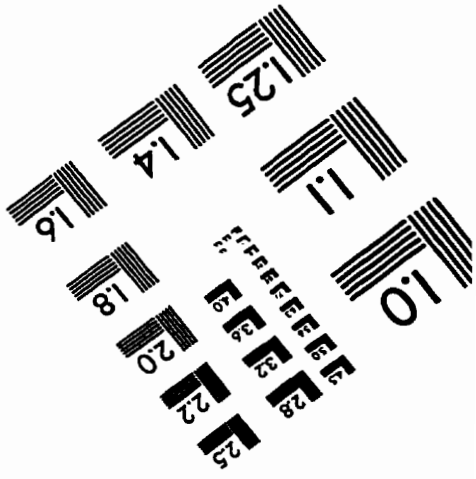



APPLIED IMAGE . Inc
1653 East Main Street
Rochester, NY 14609 USA
Phone: 716/482-0300
Fax: 716/288-5989