

At Risk: A Socio-economic Analysis of Health and Literacy Among Seniors

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International Adult Literacy Survey

At Risk: A Socio-economic Analysis of Health and Literacy Among Seniors

Paul Roberts and Gail Fawcett

Centre for International Statistics, Canadian Council on Social Development

The International Adult Literacy Survey (IALS) was a seven-country initiative conducted in the fall of 1994. The Canadian component of the IALS study was primarily funded by the Applied Research Branch and the National Literacy Secretariat of Human Resources Development Canada.

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Introduction

A population health approach recognizes that many factors can affect the health of a population. One of the most important of these is the socio-economic environment. As a 1996 draft discussion paper by the Canadian Public Health Association reports, “The evidence points to the socio-economic environment as a powerful and potentially modifiable health-determining factor and public policy as an instrument for changing this environment” (CPHA 1997: v).

More and more research demonstrates that social, demographic and economic factors and practices affect the health of a population. The relevant literature includes studies that have explored the link between the health of a population and such factors as income, education, occupation, marital status, family structure, urban or rural residency, gender, housing tenure, geographical location and immigration.

In Chapter 1 of this report, we will review this literature and supplement it with our own research findings using the 1994 Canadian National Population Health Survey (NPHS). Our findings support the existing literature in confirming the link between health status and two socio-economic variables in particular: income and education. Furthermore, our findings suggest that some of the relationships between certain factors and health can vary by age group. The unique situation of seniors¹ is explored.

In addition to being linked to the health status of the population, these socio-economic factors also appear to be related to literacy levels and practices as well as to patterns of information acquisition. While the influence of many socio-economic factors on health is increasingly well documented, much less is known about literacy skills and practices as well as patterns of information acquisition among those in the population with higher health risks. As well, we must ask how these relationships vary through different stages of the life cycle.

An understanding of these relationships is important for several reasons. Low literacy skills and related practices may serve as barriers to the attainment of good health care practices and healthy lifestyle decisions. Literacy can therefore be considered an important policy issue for health promotion: enhancing literacy can help to achieve health promotion goals, and understanding literacy practices and patterns is the first step towards more effectively sending health messages to target populations.

Chapter 2 of this report examines variations in literacy skills and practices and in patterns of information acquisition among seniors, by selected socio-economic variables, using Canadian data from the International Adult Literacy Survey (IALS) 1994. While not a direct test of the linkage between literacy and health status,² this research seeks to correlate and compare the health-related characteristics of seniors with their literacy skills and practices. Our findings support the view that seniors with low literacy skills are more likely to have health problems than are seniors with high literacy abilities.

Chapter 1

The link between population health and the socio-economic environment

Traditionally, research on health has concentrated on the importance of obvious health variables such as genetics, biomedical factors, lifestyle patterns, risk behaviours and health care. The importance of this research is undeniable, but it has become increasingly evident that the health of a population is also strongly linked to social and economic variables. Socio-economic status, for example, is considered by many to be a crucial predictor of health status. Evidence demonstrates that “a gradient exists in the rate of disease from the top of the social hierarchy to the bottom for almost every disease that has been studied, practically everywhere in the world” (Syme 1994).

Various social, demographic and economic factors appear to be related to the health of a population. The complex interaction of these factors is not yet fully understood; moreover, the link between these variables and health may vary through the life cycle. In this review we examine a number of these factors and their relationship to the health of a population, with a focus on seniors.

Social and demographic factors

The literature provides evidence that health status is closely related to the social environment in which people live. One key social factor that has been investigated is **marital status**. Researchers have generally found that married people tend to be healthier and live longer than those who are not married (Premier’s Council on Health Strategy 1991, as reported in CPHA 1997; Goldman, Korenman and Weinstein 1995; Choi 1996; Lillard and Panis 1996). Two different theoretical perspectives—selection and protection—dominate the literature with respect to the role of marriage and health.

Advocates of the selection hypothesis argue that healthier people are more likely to be selected into marriage; as well, healthier people may be better able to “maintain a marital relationship and thus have lower dissolution rates” (Lillard and Panis 1996: 314). It has also been proposed that the strength of the link between health and selection into marriage is dependent upon the proportion of individuals in the population who are single (Hu and Goldman 1990; Kisker and Goldman 1987; Livi-Bacci 1984). Generally, this group of hypotheses suggests that the smaller the proportion of singles in the population, the greater the difference in health outcomes between married and single individuals.

The protection hypothesis states that marriage somehow awards protection against ill health. There are a number of mechanisms that have been proposed to explain just how such protection is actually conferred:

- marriage may encourage healthy behaviours and discourage risky behaviours
- marriage may lead to increased social supports (a wider network of family and friends)
- marriage may lead to increased caregiving during times of illness, leading to faster and more complete recovery

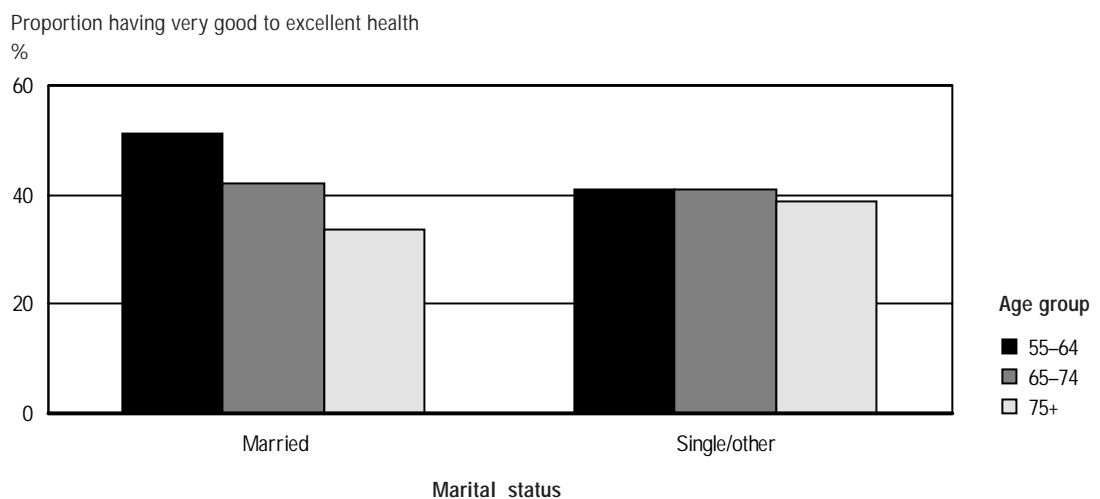
- marriage may be associated with stress reduction, leading to lower risk of stress-related health disorders
- marriage may lead to greater economic well-being leading to better health.

While a variety of mechanisms has been proposed, exactly how these factors mediate between marital status and health still needs to be examined. Some work has been done on this front, particularly with respect to social supports in general. It is typically found that individuals with larger social networks tend to be healthier, recover from illness faster, participate in more positive health care behaviour and live longer (Shye, Mullooly, Freeborn and Pope 1995; Johnson 1996; Choi 1996; Nelson 1993; CPHA 1997). However, these associations have been found to vary by sex; for example, it has been found that women tend to have larger social networks than men. Women may, in fact, *require* larger social networks than men to derive a health benefit, suggesting that men and women have different thresholds with respect to the social network–health outcome relationship. Some evidence also suggests that the importance of social supports to health outcomes may be more significant for seniors than for younger people (Shye et al. 1995).

Social support networks are believed to vary by sex, age, marital status, urban/rural residency, race and ethnicity. Differences in the level of social support, for example, are considered partially responsible for the differences in health status between seniors living in rural areas and seniors living in urban areas in the United States (Johnson 1996).³

Both the selection hypothesis and the protection hypothesis, then, support a link between marital status and health in the population; however, this link appears to vary by age. Canadian data from the 1994 National Population Health Survey (NPHS) revealed that, among non-seniors, married individuals were more likely than unmarried ones (whether never married, divorced, separated or widowed) to have very good or excellent health (Figure 1.1). The relationship between marriage and health among non-seniors was strongest among those who were 25 to 34 years of age; 73.8% of married people had very good or excellent health. Nevertheless, the largest proportional differences occur between married people and those who were single or other for the age groups 45 to 54, and 55 to 64 (see Appendix A, Table 1.1).⁴

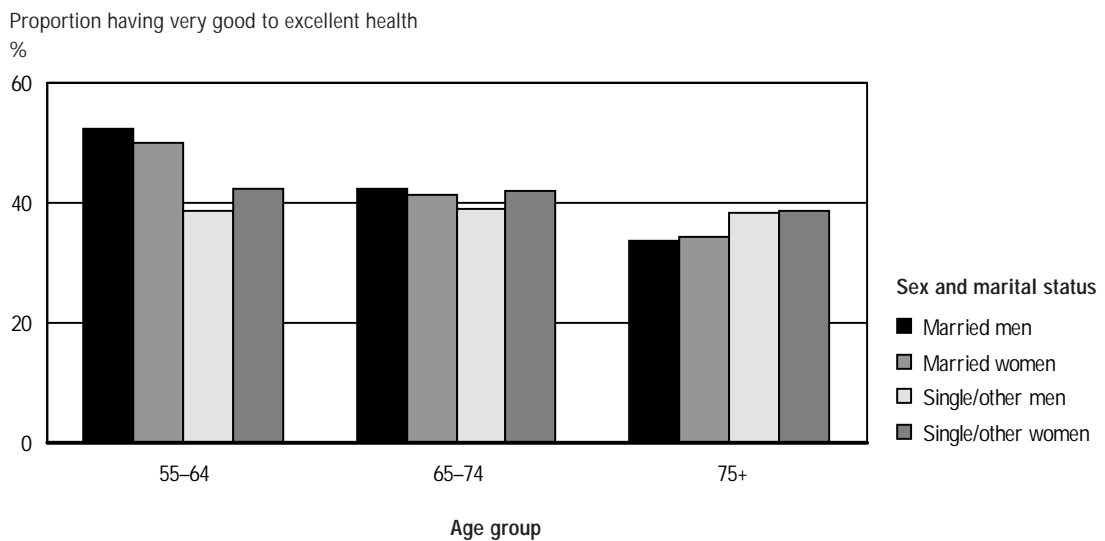
Figure 1.1 Proportion of Canadians in very good to excellent health, by marital status and age



Interestingly, the relationship between marital status and health appeared to reverse for those seniors over the age of 75. People aged 75 and over who were never married (listed as single in Figure 1.1 and Table 1.1), divorced, separated or widowed, were slightly more likely to be in very good or excellent health than those who were married. Approximately 38.6% of single or other seniors had very good or excellent health, compared with 33.8% of married seniors.

There are also important sex differences in the marriage–health relationship. As summarized in Figure 1.2 and Table 1.2, the positive relationship between marriage and health for those aged 55 to 64 was more pronounced for men than for women. The slightly negative relationship between marriage and health for seniors 75 and older was somewhat more pronounced for women than for men.

Figure 1.2 Proportion of Canadians in very good to excellent health, by age, marital status and sex



The finding that the positive relationship between marriage and health is more pronounced for men than for women is not new (Goldman et al. 1995), nor is the finding that the positive association between marital status and health disappears among the elderly (see discussion in Choi 1996). Some researchers have found that never-married elderly women have better health than their married counterparts (Goldman et al. 1995). One explanation proposed for this finding is that women have a higher ‘threshold’ requirement to experience health benefits from their social network, and that single elderly women have larger social networks than married elderly women. As we have seen, women enjoy increased health outcomes from a social support system only when that system involves a large number of individuals, whereas men derive benefit from social support networks consisting of much fewer people (Goldman et al. 1995). Other researchers note the importance of differences in education and income between never-married elderly women and their married (and formerly married) counterparts in explaining such findings.

As well, some selection may be taking place among seniors. If, for example, it is more likely for single individuals who are in poor health than married individuals in poor health to be institutionalized with advancing age (and most of the surveys exclude the institutionalized population), then one would expect that the remaining ‘household’ population of single seniors would exclude those with the poorest health, thereby making it appear that single seniors were healthier than is actually the case. As well, as Goldman et al. (1995: 1727) suggest, “it is plausible that even in the presence of substantial selection into first marriage, the resulting health disadvantage

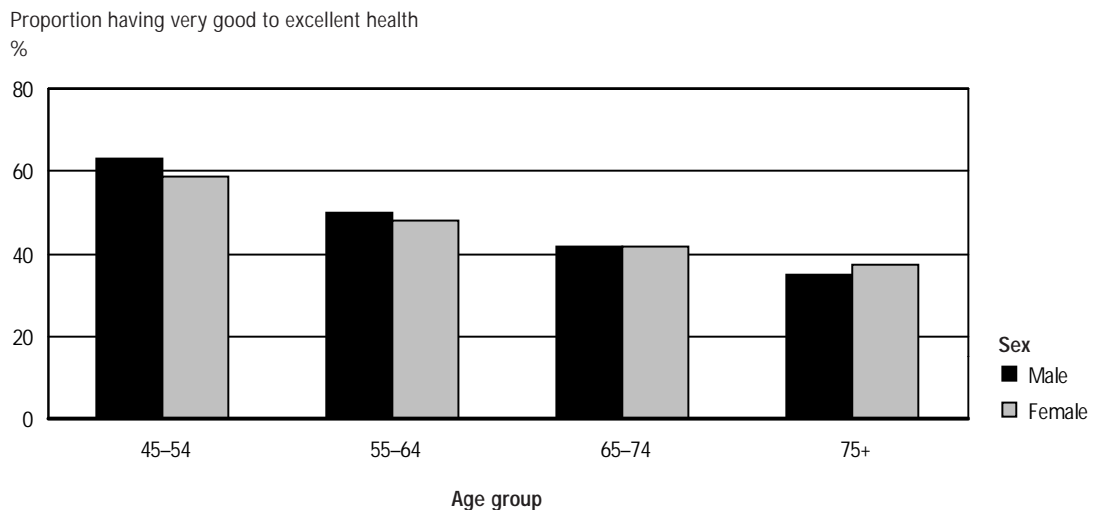
of singles may no longer be apparent at the oldest ages, since a high proportion of relatively frail singles may have already died.”

There is another type of hypothesis that might shed additional light on these issues. A hybrid of the selection and protection hypotheses, it suggests that marriage is believed to confer health benefits and, therefore, those who are least healthy are most likely to seek marriage. It has been found that older men, in particular, are more likely to remarry after divorce or widowhood if they are in poor health, thus increasing the proportion of unhealthy married men in the older age groups (Lillard and Panis 1996).

Our findings from the NPHS are incomplete in one area: it is impossible to distinguish the states of divorce, separation and widowhood from one another. In fact, there is reason to believe that the health status of individuals in these three groups may differ significantly (Goldman et al. 1995), with widowed seniors having poorer health than divorced or separated ones. As a result, it is difficult to make a statement about the effects of divorce, separation or widowhood on the basis of these data.

Various other social and demographic factors⁵ can be linked to health. There are differences in health by **age**, with older people being considerably more likely to experience poor health. There are also differences by **sex**: men were slightly more likely to be in better health among younger age groups, women among the oldest age group (see Figure 1.3 and Table 1.3).

Figure 1.3 Proportion of Canadians in very good to excellent health, by age and sex



Another major socio-demographic variable associated with health is **immigration**. Using NPHS data, Chen, Ng and Wilkins (1996) compare the health status, health care utilization and health-related behaviours of people who are Canadian-born and those who are immigrants. Using age-adjusted information and controlling for the length of time since immigration, they uncover some interesting details.

Immigrants represented about 21% of the Canadian household population over the age of 17 in 1994–95 (Chen et al. 1996: 35). The characteristics of this immigrant population are not homogeneous. Immigrants who arrived in Canada 11 or more years ago tended to come from Europe and be relatively older, while more recent arrivals tended to be non-European and younger.

Differences in health-related attributes were apparent between the recent immigrant and the Canadian-born populations. However, the health-related attributes of immigrants with relatively longer periods of residence in Canada were similar to the Canadian-born population. For example, chronic conditions, including joint problems, allergies, asthma and hypertension, were more common, overall, among the Canadian-born population than among the immigrant population—57% versus 50%, respectively (1996: 37). As the length of residence increased, the incidence of any chronic condition among the European or the non-European immigrant populations witnessed an increase from a low of 47% and 37% to a high of 58% and 51%, respectively. The longer members of the immigrant population had been in Canada, the more likely they were to develop chronic conditions at rates similar to those born here.

Overall, the researchers found that immigrants were less likely to suffer from chronic conditions and disability, were less likely to smoke and were more physically active than the Canadian-born population. However, this situation changed with length of residence in Canada. Immigrants who had resided in Canada for 11 or more years were more likely to reflect the higher incidence levels of the Canadian-born population, while relatively recent arrivals were healthier. Similar findings have been reported in the United States and Australia. To explain these findings, Chen, Ng and Wilkins (1996) suggest the frequently mentioned “healthy immigrant effect.” This refers to the regulations governing immigration to Canada, which select for people who are in better health at the time of immigration. One way the regulations ‘select’ for healthier immigrants is through mandatory medical examinations that screen out those suffering from serious medical conditions (1996: 33).

Home ownership is another socio-demographic variable that appears to be associated with health outcomes (Table 1.4). This relationship also varies by age. Among the younger age groups, those who own their home appear to have a health advantage over those who do not, but for those age 75 and over this is not the case. Why is this? Home ownership may be important as an indicator of economic status. Perhaps renting may be preferred among the older age groups regardless of economic ability to own a home as it may result in lower maintenance requirements.

Socio-economic status

As noted earlier, socio-economic status has been cited as one of the strongest predictors of health available. There is abundant research that makes this connection (Adler, Boyce, Chesney, Cohen, Folkman, Kahn and Syme 1994; Nelson 1994; Winkleby, Jatulis, Frank and Fortmann 1992; Marmot, Shipley and Rose 1984; Kitagawa and Hauser 1973). There is, however, a variety of opinions as to which measure of socio-economic status is most useful. Typically, three measures are used in the existing research: income; education; and occupation and labour force status.

Occupation and labour force status are believed to affect health in a variety of ways. Certain occupations are associated with more hazardous work and/or less healthy work environments, which lead to poorer health (Dickinson and Stobbe 1988). As well, difficulties associated with some occupations or labour force statuses may lead to ill health. Occupations that have lower financial rewards or greater employment instability can affect health. Certainly unemployment has the potential to affect mental and physical health significantly (D’Arcy 1986). In addition to the added economic stresses, some unemployed workers face loss of purpose and identity as well as changes in their self-esteem, social status and opportunities for personal development. There is also, according to some research, a correlation between unemployment and increased mortality rates. Studies have focused on suicide and cardiovascular disease as the causes of death. According to the Canada Health Survey, the unemployed reported worse levels on 7 out of 12 health indicators, including psychological distress, anxiety or depressive symptoms; short- and long-term disabilities; and number of current health problems, hospitalizations and contacts with physicians (D’Arcy 1986). Family members of the unemployed can also experience negative health consequences.

Nevertheless, the use of occupational status as an indicator of socio-economic status is often problematic. This is due to the fact that the scales used to rank occupations have been criticized as biased by sex, race and culture (Nelson 1994). Furthermore, occupational status loses relevance when applied to a population of seniors who are almost all retired from the labour force.

Researchers appear to be split primarily between **income** and **education** as the socio-economic indicator that is the best predictor of health status. Some argue that for younger populations, income may be a better indicator than education since there is increasing homogeneity of educational attainment among younger age groups (Nelson 1994). However, when seniors are the focus of research, “higher education, rather than income or occupation, may be the strongest and most consistent predictor of good health” (Winkleby et al. 1992: 819).⁶

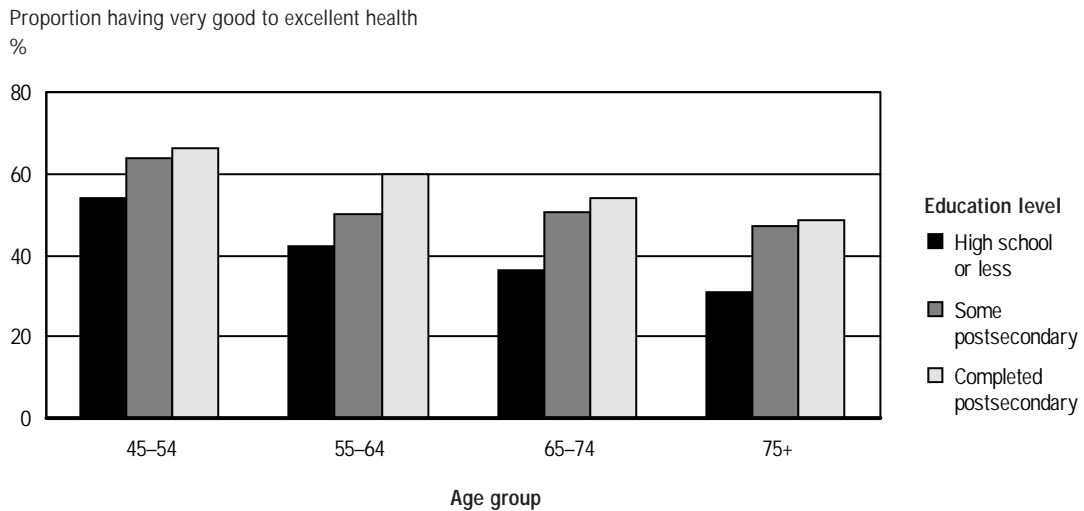
Three categories of explanations for the association between **education** and health are typically proposed: work and economic conditions, social-psychological resources, and lifestyle. The link between education and health is seen by some to be through work and economic conditions; these researchers propose that higher levels of education lead to employment in less hazardous occupations and workplaces and to jobs that permit greater control over one’s life—all of which lead to better health. As well, higher levels of education are associated with higher levels of income, and some believe that it is really income that affects health: greater financial resources permit healthier lifestyles and better nutrition and provide access to better medical care. However, other researchers have found a positive correlation between education and health even after income and work conditions have been controlled (Ross and Wu, 1995 and 1996).

It has also been suggested that the education–health connection is due to social–psychological resources. Higher levels of education may lead to “more supportive relationships” (Ross and Wu 1995: 738); they may also increase one’s sense of control and one’s ability to understand health risks and to participate positively in one’s own health care. As well, as Ross and Wu (1995: 738) suggest, “Learning, thinking, reasoning, solving problems, and so on are mental exercises that may keep the central nervous system in shape the same way that physical exercise keeps the body in shape.” Nevertheless, the relationship between education (social–psychological resources) and health is not without problems. Tuijnman (1989) determines that those with the highest level of educational attainment in fact have lower levels of job satisfaction and well-being than people with slightly lower educational levels.⁷ That is, those who would be predicted to have the greater self-efficacy and control of their social-psychological educational resources and thus better health, tended to have slightly lower levels of job satisfaction and well-being.

Still other researchers maintain that higher levels of education do in fact lead to healthier lifestyles. This is based on the association of education with a variety of healthy activities and lifestyles. These include: exercise, good nutritional habits, reduction of risk behaviours such as smoking and not using seatbelts, and regular medical check-ups (Ross and Wu, 1995 and 1996; Leigh and Fries 1993; Millar and Stephens 1993).

Regardless of the mechanisms that might operate to translate higher levels of education into better health outcomes, education is relatively strongly linked to health. Our evidence seems to back up this conclusion. As illustrated in Figure 1.4 and Table 1.5, those with higher levels of education are much more likely to be in very good to excellent health than those with lower levels of education, and this relationship is fairly constant across age groups. Further analysis reveals that this is true for both women and men (Table 1.6). Thus educational attainment is likely to be a very strong predictor of health for all age groups, including seniors. Indeed, it will allow us to differentiate between groups at greater risk of poor health. Advocates of a convergence hypothesis have found that the link between education and health diminishes with age (House, Lepkowski, Kinney, Mero, Kessler and Herzog 1994). However, others have found quite the opposite: a divergence hypothesis proposes (relying on a cumulative advantage theory as explanation) that the strength of the education–health relationship increases with age (Ross and Wu 1996). Our own findings using the NPHS suggest that the link between education and health is fairly constant with age—supporting neither the convergence nor the divergence camps.⁸

Figure 1.4 Proportion of Canadians in very good to excellent health, by age and education level



The other indicator of socio-economic status commonly used, as we have seen, is **income**. However, income may be problematic as an indicator, “as it is less stable over time than the other measures, it is age dependent, and it is a sensitive topic and is thus associated with higher refusal rates” (Nelson 1994: 5).⁹ Furthermore, Ross and Wu (1996) raise a methodological concern regarding the use of income as an indicator of health. Poorer health can lead to reduced income, which can lead to poorer health, and so on. It therefore becomes difficult to isolate a clear causal path.

The literature abounds with examples of the income–health link (Ross and Wu 1995; Nelson 1994; Winkleby et al. 1992; D’Arcy 1986). Those with higher income levels are more likely to be healthy. As with education, there are various explanations that have been put forward to provide reasons for this link. As noted previously, income may represent an intervening variable between education and health. Income has also been related to the same lifestyle risk factors—such as exercise, nutrition and smoking—as education (Adler et al. 1994).

There is also a belief that higher income increases access to health care for both prevention and treatment. Although one might expect this link to be less important in Canada than in the United States because of socialized medical care, the importance of non-reimbursed and out-of-pocket medical expenses in both countries cannot be ignored. There is also speculation that those with higher incomes live in healthier environments characterized by less crowding, less pollution, lower risk from toxic substances, etc. (Nelson 1994). As well, poor children are disadvantaged relative to their peers in numerous ways: they are more likely to be born premature, have low birth weight, have higher risks of injury and disease, engage in riskier behaviours, and develop psychosocial problems (CPHA 1997). These disadvantages may persist into adulthood, even if socio-economic status improves. Nevertheless, it must be noted that income is not deterministic in this regard since a variety of other factors, such as good family functioning, can reduce the probability of negative outcomes associated with lower income levels (Statistics Canada 1996b).

Moreover, socio-economic status may have effects that go beyond material differences. Evidence suggests that it is not deprivation of the necessities of life that accounts for the variation in health status by socio-economic status (Hertzman 1994). More important are the social meanings attached to conditions and the ways in which people feel about themselves and their lives (Wilkinson 1994). Wilkinson demonstrates that growth in per capita income is no longer as important in

determining health status of populations as is income distribution. Once per capita income reaches approximately \$5,000, income distribution within a society becomes a determining factor. The narrower the income gap in a society, the healthier the population. Irrespective of how much they spend on health care, societies that are reasonably prosperous and that do a reasonably good job of redistributing wealth equitably have the healthiest populations. Syme (1994) has suggested that the increasing lack of control down the social scale may account for the increasing health disadvantage. In other words, low socio-economic status is often accompanied by high levels of economic insecurity and stress, relative deprivation and lack of control over the circumstances of one's life, all of which can negatively affect health.

Our research with the NPHS confirms the relationship between income and health. Those with upper-middle and upper income levels are more likely to enjoy very good to excellent health than those at lower levels of income within every age group, although the gap between income levels is less pronounced among the older age groups (Table 1.7). Further research reveals that this relationship holds for both sexes (Table 1.8).

In conclusion, the literature and our own research with the NPHS reveal that education and income are both strong predictors of health status. Other socio-demographic variables—sex, immigration status, marital status and ownership of dwelling—allow us to distinguish among differing levels of health, but not to the same degree. This relationship also holds across age categories: from younger to older individuals there is a gradient, with higher levels of education and income being associated with improved health status. Nevertheless, as stated in the introduction, literacy is a neglected aspect of the socio-economic environment's effect on an individual's health status, one which is affected by a number of the variables discussed in this section. Literacy and its association with health will be the focus of the next section.

Chapter 2

Literacy and information acquisition among seniors

The economic and social consequences of possessing poor literacy skills are serious and well-documented. People having lower literacy skills are more likely to be unemployed, work part time and have lower incomes (Shalla and Schellenberg 1998; Statistics Canada 1996b). Indeed, the economic and social structural adjustments that are occurring in response to the changing shape of the global economy are reducing the opportunities for those with low literacy abilities (OECD 1995). Unfortunately, these adjustments are not complete and will continue to restrict the opportunities of low-literacy people into the future (OECD 1995). However, while more attention is paid to the relationship between literacy and the socio-economic environment, an aspect of this discussion which is sometimes overlooked is that literacy is also an important factor for determining health: lower literacy skills can be a significant barrier to a healthy lifestyle.

The link between health and literacy for seniors

In a 1996 report, the Canadian Public Health Association (CPHA) recognizes literacy as an essential aspect of health. In reviewing the impact of social and economic conditions on health, it isolates literacy as an important public policy area (1997: 17). The health effects of literacy can be categorized as direct and indirect; the latter are indicators of other conditions that have a negative influence on health (CPHA 1997; cf. Breen 1998).

One of the most obvious and critical areas where low literacy skills can have a direct effect on a person's health is the failure to understand and comply with the use of prescription drugs (Salzman 1995; Williams, Parker, Baker, Parikh, Pitkin, Coates and Nurss 1995; Murphy, Davis, Jackson, Decker and Long 1993). While medication non-compliance among patients occurs at all age levels, the reasons for non-compliance differ across the life course. It is a particular problem among elderly patients since they are more likely to use medication and take several drugs simultaneously, to be confused or misunderstand the proper dosage, to fail to comply intentionally because of cost or side-effect, or otherwise fail to follow instructions because of an increased sensitivity to drug effects (Salzman 1995).

Many seniors take several different types of medication, prescribed by more than one doctor. The potential for medication errors is enormous among those unable to understand written directions properly. Evidence suggests that seniors, who represent 12% of the Canadian population, receive 28% to 40% of all prescriptions (Tamblyn and Perreault 1998). Given that the proportion of the Canadian population who are seniors is expected to be 18% by 2025, and that the use of medications increases with age (Tamblyn and Perreault 1998), medication non-compliance is likely to become an expanding problem. Unfortunately, those elderly patients with lower literacy skills will experience this problem to a much greater degree (Murphy et al. 1993).

However, medication non-compliance is just one aspect of the larger issue of literacy and medical directions. Not only must patients be able to understand the instructions contained on prescriptions or medicine bottles; they must also be able to understand appointment slips, consent documents and health educational materials. The ability of elderly health-care consumers to be active and effective participants in their own health care regimes is seriously compromised if their ability to read and understand written instructions and health education materials is inadequate.

Past research suggests that among seniors whose health is at high risk, literacy levels may be very low (Williams et al. 1995; Murphy et al. 1993). Indeed, the combination of low literacy and chronic illness is particularly common among the elderly (Davis, Meldrum, Tippy, Weiss and Williams 1996).

Much of the health care information provided to patients is in written form and is above the reading level of the average adult (Grade 8). In one American study (Jackson, Davis, Bairnsfather, George, Crouch and Gault 1991), the readability level of medical forms, patient education information and other written materials was compared with the literacy levels of patients using several health care clinics. The mean reading level of the patients was third grade, while the reading level required to understand the written materials was 12th grade. Postgraduate levels of literacy were required to comprehend some of the forms available, including the consent forms used in surgery and other medical procedures. Of the 280 written materials analysed for readability, only 5% had a readability level below the ninth grade. Yet, fully 68% of patients tested were reading below the ninth grade level.

The ability of seniors to function within a health care environment is particularly important since they are more likely to suffer chronic illnesses and take medications (Salzman 1995; Murphy et al. 1993). Williams et al. (1995) performed a study of more than 2,600 patients in the United States using a diagnostic test of functional health literacy that measured the patient's ability to understand and read medical instructions and health care information in the form of prose passages and numerical information. They conclude that for elderly patients 60 years old and over,¹⁰ approximately 81% of English-speaking and 83% of Spanish-speaking patients had inadequate or marginal functional health literacy, a significantly higher proportion than in younger patients. Failure to properly understand the health information provided means that many of these elderly patients are unable to participate responsibly in their own care and may in fact impair their own treatment (Williams et al. 1995).

An important aspect of any health strategy is the ability of the patient to participate in the decision-making process regarding procedures and personal health concerns. While evidence suggests that this is frequently not the case for those elderly patients with low literacy (Williams et al. 1995; Walmsley and Allington 1982), researchers have been attempting to construct programs that would allow elderly and low-literacy patients to get involved with some success (List, Lacey, Hopkins and Burton 1994; Harper and Van Riper 1993).

List et al. (1994) focus on a sample of elderly women, aged 65 and over, with education levels lower than Grade 8. Their concern is that older women are at a much greater risk of both breast and cervical cancer, but that older and lower-literacy women are much less likely to undergo routine screening procedures or to have adequate and accurate information about cancer and its treatments. As well, traditional information and educational approaches are frequently not effective in reaching this population because of its low level of literacy. Lower-literacy women, therefore, possess a diminished decision-making capacity regarding their own personal health concerns. List et al. (1994) used focus groups of elderly, low-literacy women to critique existing written health information and to construct appropriate educational materials. These were subsequently distributed in the community using selected focus group volunteers or 'senior health advocates' as peer helpers. They conclude that a peer-helper approach may more easily forge links with older low-literate women in the community and that:

Through the combination of diverse resources, experiences, and expertise, these partnerships have the potential for developing and implementing effective health care interventions and educational programs to older adults... (List et al. 1994: 54)

When considering the safety risks in the community and the home, literacy is an important factor. People who are unable to read warning labels or safety instructions correctly put themselves at risk of serious injury or negative health effects (Breen 1998). Workplace health and safety programs are increasingly focussing on this issue as a result of the social and business costs involved when workers are injured, frequently because of low literacy skills or poor language

skills (Breen 1998). These risks are just as immediate for the elderly since they too must understand and evaluate health and safety information in their homes (Davis et al. 1996).

While lower literacy skills are independently associated with health status, it is also the case that they are indirectly associated with poor health outcomes (Breen 1998). People possessing reduced literacy skills are more likely to have increased stress and diminished self-confidence, leading to lower self-esteem and difficulty in finding employment (CPHA 1996: 18). As mentioned in our review in Chapter 1, people in lower socio-economic conditions—such as those who are unemployed or have lower income or lower education—are much more likely to have reduced self-perceived levels of health.

Such socio-psychological difficulties as stress and lack of self-confidence can affect the physical health and lifestyle of people suffering poor literacy skills. Evidence from medical studies indicates that people with low literacy skills are not as likely to pursue preventative health measures in their lives; they tend to smoke more, drink more coffee and have poor nutrition, and they are less likely to engage in regular physical activity (CHPA 1997: 18). Each of these pursuits has been linked with lowered health status and greater propensity to suffer a number of adverse health conditions, including heart disease and cancer (Health Canada 1994).

Patients and the general public have access to medical and health information, in both written and oral forms, detailing the negative health effects of activities such as smoking or failing to engage in regular physical activity. The problem for those with low literacy skills is that they may not be able to understand the information fully. As Davis et al. (1996: 98) explain:

In health care, the problem is not just that people are expected to read materials. They are also expected to comprehend and absorb the message and apply that comprehension in day-to-day living by modifying their behavior.

Frequently, because of their poor literacy, patients are unable to absorb and apply the health advice they receive. Indeed, being able to function in day-to-day literacy situations, even if one has relatively good literacy skills, does not mean that one is necessarily able to comprehend and act upon medical advice contained in health pamphlets and literature or received from one's physician. Quite often the health and medical information provided to people has a language and vocabulary all its own. This new terminology may not be easily comprehended even by those with higher literacy skills. Instead it must be presented in written or oral form in such a manner that it can be learned and understood by patients (Davis et al. 1996). Nevertheless, a patient whose literacy skills are already poor is obviously less likely to understand.

The negative health consequences for those who possess low literacy skills range across the health spectrum. While an increased incidence of disease and health problems has been associated with low literacy (Breen 1998; Davis et al. 1996), the literature indicates that the elderly are at particular risk. Indeed, those elderly possessing low literacy skills have been implicated in the inappropriate use of medical and health services (Davis et al. 1996).

Given the increased health risks among low-literacy seniors, it is important to understand how this population might be reached for the purposes of health promotion and awareness, as well as the difficulties it might experience in dealing with health care instructions. From a policy perspective, therefore, it would be helpful to know how this group acquires information and what skill levels its members possess for processing information. In the remainder of this part of the report, we rely on IALS (1994) to examine literacy levels of older Canadians indicated by selected measures, as well as their information acquisition patterns and problems.¹¹ In addition, given the differences by sex in the health of seniors (Shye et al. 1995), we investigate variations in literacy for elderly senior men and women.

Literacy defined

Past research has shown that literacy is both directly and indirectly connected with health outcomes. However, in order to investigate this concept, it is first necessary to gain an understanding of the meaning of 'literacy' in this study. The International Adult Literacy Survey identifies three dimensions of literacy: prose literacy, document literacy and quantitative literacy. These are defined as follows:

- **Prose literacy:** the ability to understand and use information from texts such as editorials, news stories, poems and fiction.
- **Document literacy:** the ability to locate and use information from documents such as job applications, payroll forms, transportation schedules, maps, tables and graphs.
- **Quantitative literacy:** the ability to perform arithmetic functions such as balancing a chequebook, calculating a tip or completing an order form (IALS 1994).

IALS participants were tested on a number of literacy items, with varying degrees of difficulty, from each of the three dimensions. Each participant was subsequently ranked for each of the three dimensions of literacy, on a scale from a low literacy level of 1 to a high literacy level of 5, based on their proficiency with the tested literacy items. These levels refer to the fact "that individuals estimated to have a particular scale score will consistently perform tasks—with an 80% probability—like those at that point on the scale" and that they will have a greater than 80% probability of performing tasks from lower levels on the scale (Statistics Canada 1996b: 86). It should be pointed out that people rated at a particular level can perform some tasks associated with a higher literacy level, but are unable to do so consistently. Given the small proportion of the population at the highest literacy level, 5, and the problems of decreased sample size when making comparisons to other variables, the two highest levels were collapsed into one category, 4/5.

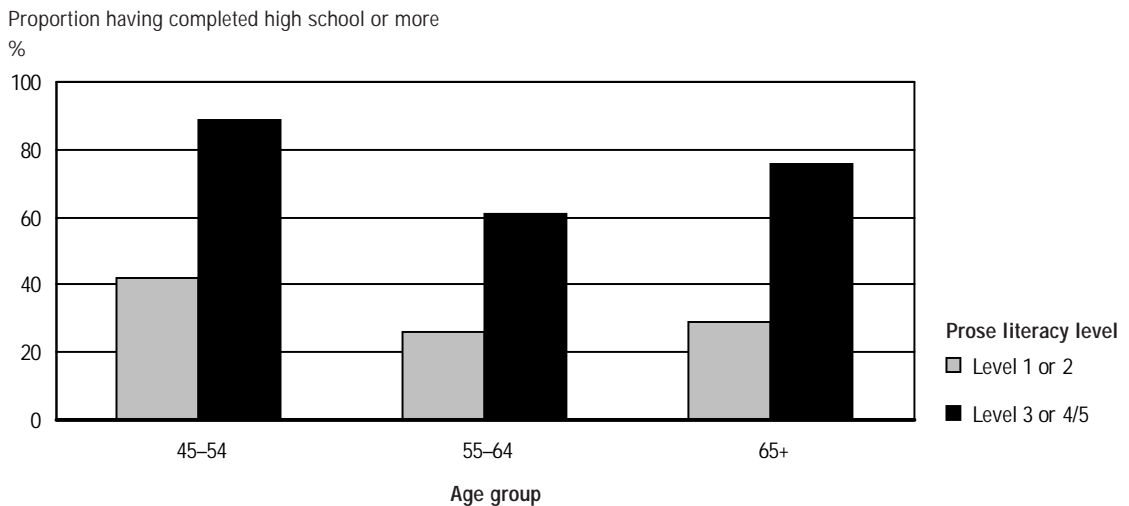
Literacy, age and education

The literacy research suggests that senior citizens are a particularly vulnerable group when considering literacy ability and skills. Indeed, the research by Williams et al. (1995) found a large proportion of elderly patients who did not show full functional literacy with respect to health. Using the IALS data, we obtain results that would seem to support these conclusions (Table 2.1). For all three forms of literacy ability (prose, document and quantitative), there is a change across the age range. Literacy ability is higher in the younger age groups and decreases with age. For example, while approximately 67% of people aged 16 to 24 years have literacy abilities at Level 3 or 4/5, only about 21% of seniors are at these same levels. Fully 79% of senior citizens have measured literacy abilities at the two lowest levels for each of the three literacy types. Much of the decline seems to occur for the age groups 55 to 64 and 65 and over for each literacy type. Thus, seniors seem to be especially at risk in medical situations that at times demand high literacy ability (cf. Jackson et al. 1991).

We have seen (Tables 1.5 to 1.8) that seniors with lower levels of education and income are at much higher risk of having health problems than younger individuals or seniors with higher levels of education and income. While other social and demographic factors may be related to health outcomes, education and income represent the strongest predictors of health of all the socio-economic variables investigated in Chapter 1. While both education and income appear to be strong predictors of health outcomes, education is selected here for two reasons. First, the data used in this part of the report come from the International Adult Literacy Survey, 1994 (IALS), and there is a much higher rate of non-response to the income question contained in IALS than to the education question. Second, the findings from the NPHS suggest that there may be greater variation in health outcomes across education levels than across income levels for seniors (IALS data are compared with income data from another data source in Table 2.2).¹²

Using the three dimensions of literacy (prose, document and quantitative) found in IALS, we can observe that while not the same, there is a definite connection between literacy and education. Overall on our two-point educational scale, 67.3% of Canadians aged 45 to 54, 38.8% aged 55 to 64, and 38.8% of those 65 and over had completed high school or some higher level of education (see Tables 2.3 to 2.5).¹³

Figure 2.1 Proportion of older Canadians who have completed high school or more, by age and prose literacy level



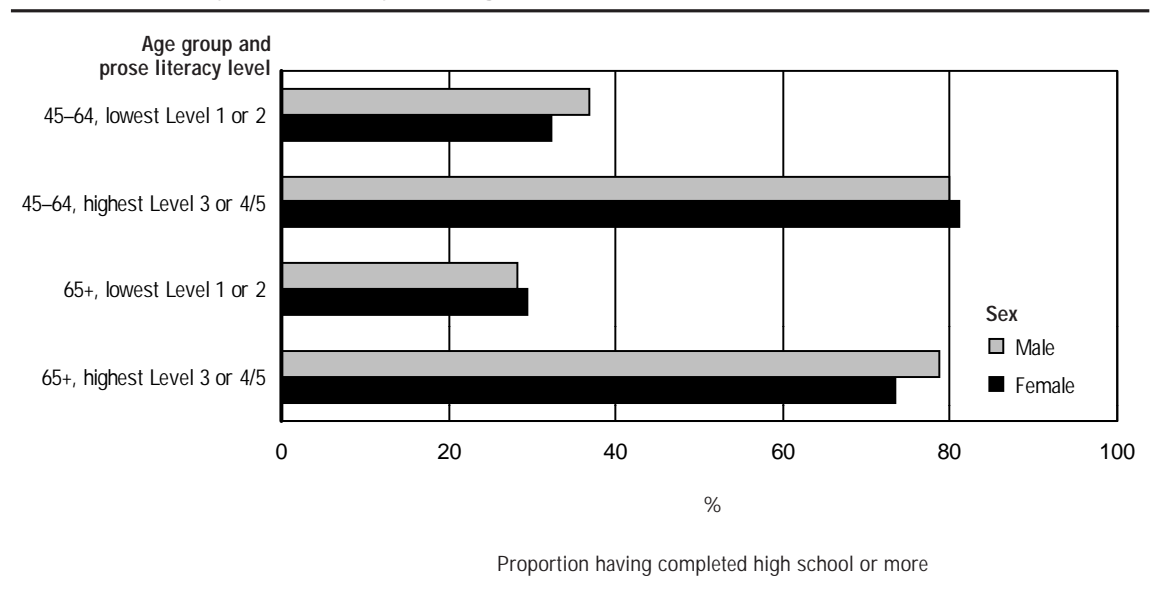
When we separate these figures by literacy type, we observe from Figure 2.1 that there is a very strong relationship between educational attainment and prose literacy levels within every age group. Among those aged 45 to 54, 88.6% with the highest level of prose literacy had completed high school education or some higher form of education, whereas only 42.2% of their counterparts with the lowest prose literacy had completed high school (Figure 2.1 and Table 2.3). Similarly, among those aged 55 to 64, 61.1% with the highest prose literacy had completed a high school education, whereas only 26.2% with the lowest literacy had completed high school or more (Figure 2.1 and Table 2.3). For people 65 years and older, the proportion who had completed high school or more was 75.9% for those with the highest prose literacy level and 29.0% for those with the lowest literacy (Figure 2.1 and Table 2.3). Similar results were found overall for both document and quantitative literacy (Tables 2.4 and 2.5). The information in these tables reveals that the vast majority of seniors with scores at Level 3 or higher for prose, document and quantitative literacy have completed high school or some other higher level of education. Literacy levels, therefore, vary with level of education among Canadian seniors for all three dimensions of literacy (Tables 2.3 to 2.5).

Nevertheless, the information in the three tables also confirms that while education is highly correlated with each dimension of literacy, it is not identical. Over one-quarter of all people with low literacy aged 55 to 64 or 65 and over have completed high school or some higher form of education (Tables 2.3 to 2.5). Indeed, for younger people (45 to 54 years old), a very large proportion of those with the lowest literacy level have completed high school or more—over 40% for each of prose, document and quantitative literacy (Tables 2.3 to 2.5). Indeed, the view that one’s literacy ability is viewed as equivalent to one’s educational background is flawed. Other research using IALS demonstrates that over one-third of the Canadian population would not fit this assumed pattern (Statistics Canada 1996b: 26). It is important to emphasize that education and literacy are not synonymous:

education...does not “fix” literacy forever. Individuals can lose skills after the end of schooling, through lack of use, or they can gain skills, through practice and additional training, even with minimal formal education. That literacy is not a skill fixed by education is important to literacy policy in Canada: it makes it clear that literacy can be influenced by what people choose to do after leaving school (Statistics Canada 1996b: 27).

Further analysis for men and women similarly reveals that those with lower levels of prose, document and quantitative literacy were much less likely to have completed high school or some form of higher education than people with higher literacy levels (Figure 2.2 and Tables 2.6 to 2.8). There are, though, interesting age and sex differences. For males who have completed high school or higher education, the difference between the proportion who possess low prose literacy and those with high prose literacy increases steadily with age: the difference is 23.4% among men aged 25 to 44, 43% for those 45 to 64, and 50.5% for the over-65 group (Table 2.6). This is in contrast to the same educational population of females, where the difference between the lowest and highest literacy levels increases dramatically but then drops slightly as age increases: from a low of 35.9% for those 25 to 44, it reaches a high of 48.9% for those 45 to 64, and then drops to 44.0% for women 65 and over.

Figure 2.2 Proportion of older Canadians who have completed high school or more, by prose literacy level, age and sex



For document literacy, the differences by literacy level between those who have completed high school or more are relatively equal for the age groups 45 to 64 and 65 years and over, for both males and females (Table 2.7). However, the percentage point difference for those who have completed high school, between young males (25 to 44) with low document literacy and those with higher document literacy is much larger than for females of the same age (47% and 31.8%, respectively). While the percentage point differences between the lowest- and highest-literacy individuals who have completed high school continues to grow with each increase in age (45 to 64, and 65 and over) for females, it remains relatively stable for males. The information on quantitative document literacy and education (Table 2.8) reveals that for both males and females, the percentage point difference between high-literacy and low-literacy people who have completed high school, increases with each age group. Higher-literacy males and females, therefore, are much more likely than low-literacy males and females to have completed high school, though this does vary to some degree by age and literacy type.

Previous research using IALS has demonstrated that literacy levels tend to decline with age (Statistics Canada 1996b; Willms 1997). Interestingly, much of the decline in literacy over the life course is attributable to a cohort effect of declining educational attainment, rather than to an age effect (Statistics Canada 1996b; Willms 1997). Adjusting for the effect of respondent's background, including education, still leaves a significant decline in the literacy levels as age increases (Statistics Canada 1996b: 37). Willms (1997) discovers that there is little deterioration in literacy levels (prose, document and quantitative) for people from the ages of 25 to 65.¹⁴ For document literacy the decline is steady, though relatively modest from age 25 to 65. Prose and quantitative literacy experience almost no decline over the same age range. However, from about the age of 65 onward, the situation changes dramatically—all three forms of literacy experience a steep decline as age increases. The number of years of education that a person possesses, on the other hand, is found to have a strong positive association with literacy ability (Statistics Canada 1996b; Willms 1997). Thus, it seems that senior citizens suffer an increasingly lower literacy ability as they grow older, and that this is much worse for those with lower education.

These results echo the earlier observations: literacy and education, while comparable, are not the same. Indeed, it is interesting to note that there are significant proportions of young, low-literacy males and females who have in fact completed high school or some higher level of education, which again reinforces the need to divorce education and literacy. Having said this, however, it cannot be denied that while education and literacy are not identical, our results do suggest that very large proportions of senior citizens in the lowest literacy categories did not complete high school.

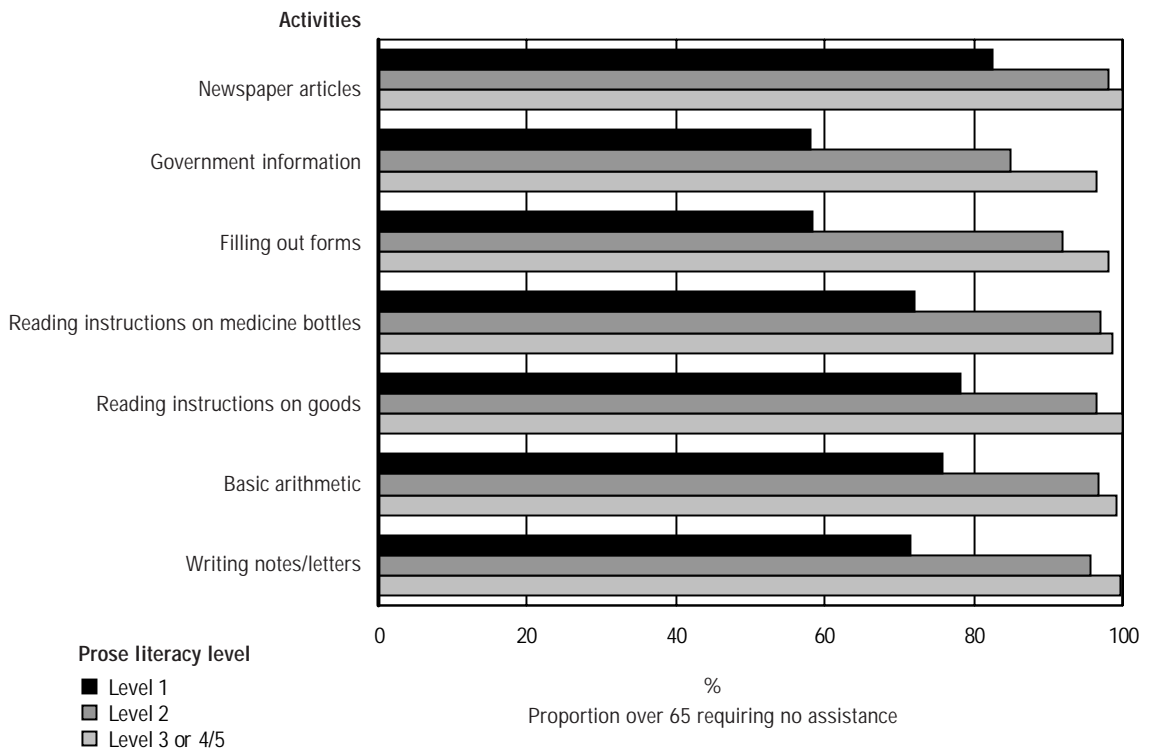
This information is in keeping with much of the literature which suggests that those seniors at highest health risk have relatively low education levels. Yet, while the IALS database does not have a measure of personal health status, Chapter 1 of this report has shown that a person's education level is correlated with relative health risk. If we extend this thinking to the IALS database, the relationship between education and health can serve as an extremely crude measure of those people who are at highest relative health risk. (Low education puts a person at relatively high health risk, and high education puts a person at relatively low health risk.) Following this logic, therefore, and using our findings in Tables 2.3 through 2.8, we observed that seniors with the lowest levels of literacy (for all three types of literacy—prose, quantitative and document) were more likely to possess lower education. It follows therefore that these seniors are also at relatively higher risk for health problems (as measured by low education). Nevertheless, while such an exercise can hint at the broader health and literacy relationship, it must be stated that it is an extremely rough and imperfect measure, used here simply to illustrate the literacy–health relationship.

To rely solely on education, however, as an indicator of those seniors citizens needing literacy help will lead to relatively large errors, as mentioned. Instead, a public policy must look at how people use and acquire information in their daily lives. What are the implications of such low literacy levels for everyday living among older Canadians?

Information acquisition patterns

The ability of individuals to understand information is only one factor in effective communication. In many instances, individuals may not realize they have difficulty in understanding certain kinds of information because they never come across it. Therefore, it is important to understand how and where they acquire this material. Information acquisition patterns vary by age and literacy type level. As summarized in Figure 2.3 (and in Table 2.9), Canadians are more likely to read newspapers or magazines daily if they have higher levels of literacy. For example, among individuals 65 and over, approximately 62% of those with low prose literacy read newspapers or magazines daily, whereas approximately 80% of those who have a high level of prose literacy did so.

Figure 2.3 Proportion of Canadians aged 65 and over requiring no assistance performing selected activities, by prose literacy level



As well, daily reading of newspapers or magazines is more prevalent among older age groups for those with higher levels of prose literacy; for example, 47.2% of those aged 16 to 24 with high prose literacy reported reading newspapers or magazines daily, compared with 63.7% aged 35 to 44, and 92.6% of those 55 to 64 years of age. However, for those with low levels of prose literacy, there was not such a clear trend; the proportions of different age groups who read newspapers or magazines on a daily basis fluctuated. The proportion of low-literacy 25- to 34-year-olds who read newspapers or magazines daily (62.2%) was higher than the proportion of 55- to 64-year-olds (48.8%), but the same as the proportion of seniors (62.0%) who do so.

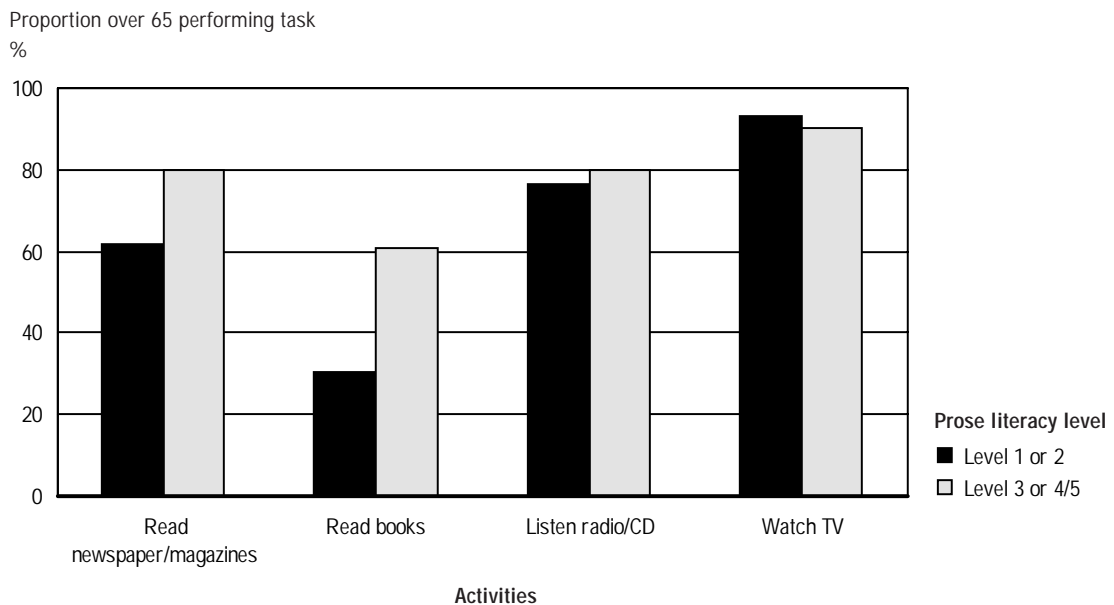
Daily reading of books was less prevalent than daily reading of newspapers or magazines among all prose literacy levels and age groups (Table 2.9). The smallest differences appear for those aged 16 to 24; it is likely, however, that the majority of these people are still in school using textbooks daily. Just over two-thirds of people aged 55 to 64 with high prose literacy reported reading books on a daily basis, and this group had the highest daily use of such material of all groups. Seniors with high prose literacy were close to this level, with over three-fifths reading on a daily basis. As observed with newspaper and magazine reading, the proportion of people with high literacy levels who read books on a daily basis tended to increase with each age group, with a slight drop-off for seniors.

While low-literacy seniors are more likely to read books on a daily basis than any other low-literacy age group, the proportion of those who actually do so is still relatively small (30.4%). As well, there are again fluctuations across the low-literacy age categories. Of those with low prose literacy, only 17.4% of the 45- to 54-year-olds, and 18% of the 55- to 64-year-olds read books on a daily basis. This discrepancy between seniors and the younger age groups may in part be explained by the greater leisure time available to seniors. However, this would be only a partial explanation at best, since it does not take account of the great difference in daily book reading between low- and high-literacy people.

Listening to radio, compact discs, tapes and records daily was most prevalent among the younger age groups and slightly more likely for those with higher levels of literacy.¹⁵ However, a very high proportion of all age groups and literacy levels had daily exposure to such material. Nonetheless, seniors with both low and high prose literacy were somewhat less likely to engage in these activities than younger age groups. While these activities are most generally associated with listening to music, it is becoming more common to have a variety of information available in these forms. Activities such as books on tape, languages and information on compact disc or record and the traditional radio informational programs all provide an avenue for literacy skills and general knowledge to be developed.

High-literacy seniors, therefore, are more likely than low-literacy seniors to be exposed to a wider variety of literacy sources and to view these on a more frequent, daily basis. Consequently, high-literacy seniors have a greater propensity, because of their literacy activities, to be exposed to a wider range of possible literacy (and also perhaps health-related) sources. Low-literacy seniors, on the other hand, are less likely to be exposed daily to as wide a range of literacy sources. As a result, they are not as likely to be exposed to health-related information in their daily lives (Figure 2.4).

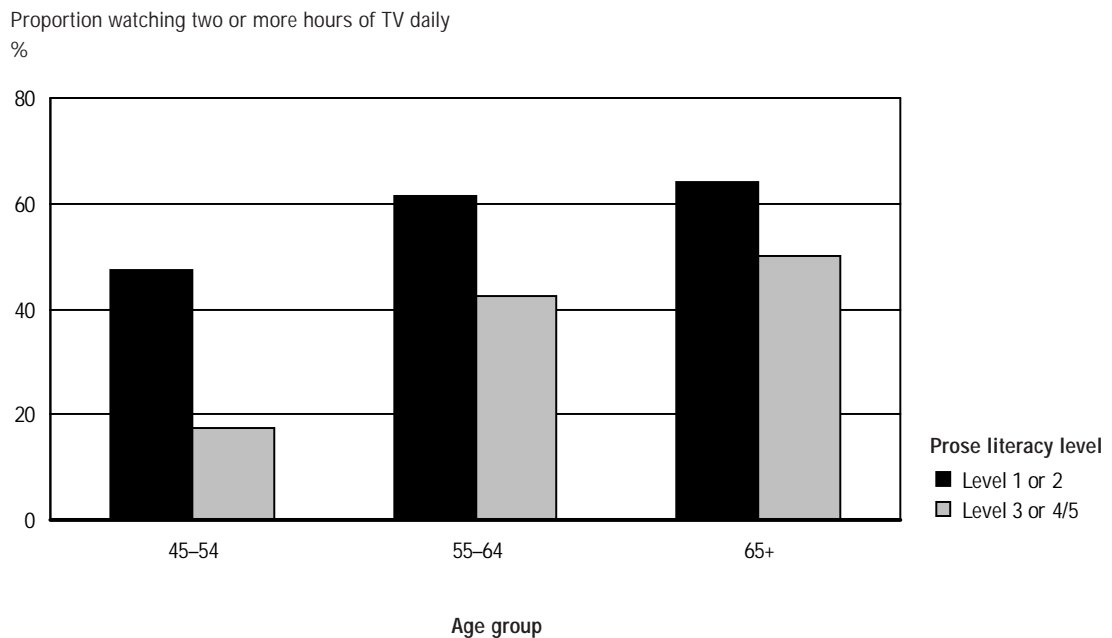
Figure 2.4 Proportion of Canadians aged 65 and over performing selected daily activities, by prose literacy level



One of the most obvious findings, summarized in Figure 2.4 and Table 2.9, is the fact that the vast majority of seniors, at all literacy levels, reported television viewing as an activity they engage in on a daily basis. In fact Canadians in every age group and within every prose literacy level were very likely to watch television every day. It would be difficult to argue that there is a clear-cut pattern with respect to incidence of daily television viewing by either age or educational level from the information in Table 2.9. Those with lower levels of measured prose literacy are very slightly more likely to watch television on a daily basis. Nevertheless, given the very high proportions of both low- and high-literacy groups who perform this activity, this small difference is not significant.

With respect to the amount of television watched on a daily basis, there are age and literacy patterns that are more evident in Table 2.10 and illustrated in Figure 2.5. For those aged 45 to 54, people with low prose literacy are much more likely than those with high prose literacy to watch two or more hours of television or videos a day (47.4% and 17.6% respectively). Among ‘near seniors’ (aged 55 to 64), those with lower levels of literacy were more likely to watch more hours of television a day than those with higher levels of literacy; 61.4% of those aged 55 to 64 with low prose literacy watched television two hours a day or more, compared with 42.4% of those with high prose literacy. The gap in daily television or video viewing by literacy level, however, tends to narrow with those aged 65 and over. Seniors with low prose literacy are more likely than those with high literacy to watch two or more hours of television on a daily basis (63.9% and 50% respectively). The percentage point difference between groups with low and high prose literacy decreases with age (Figure 2.5).

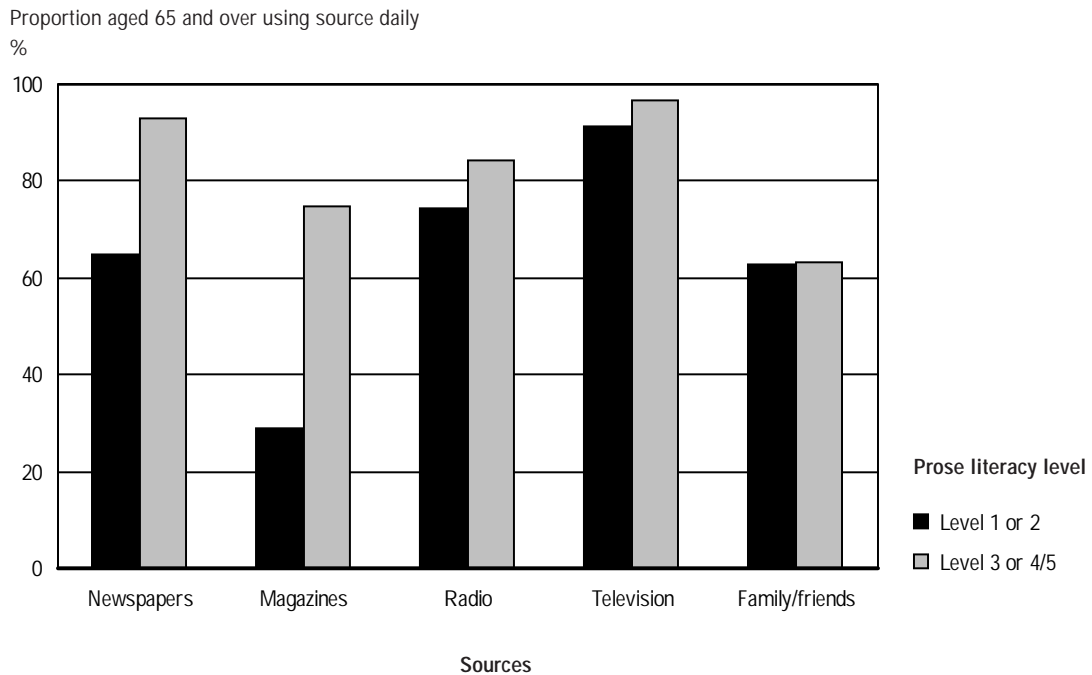
Figure 2.5 Proportion of older Canadians watching two or more hours of television daily, by age and prose literacy level



The relationship between television viewing and literacy level exists for both sexes (Table 2.11). For those under 65 years old, men and women with lower prose literacy watched greater amounts of television than men and women with high prose literacy. For those 65 and over, however, men with higher prose literacy tended to watch as much television as men of the same age with lower prose literacy (65.1% and 66.2%, respectively). For women 65 years of age and over, those with high prose literacy were more likely to watch less than two hours of television a day compared to those with low prose literacy (63.0% and 37.8%, respectively). In fact, senior women with high prose literacy tend to watch far less television in comparison to all senior men and low-literacy senior women. Using television to direct particular medical or health messages toward low-literacy seniors might prove valuable given the high proportion of seniors who watch it for two or more hours every day.

People with lower levels of literacy have less exposure to newspapers, magazines and books and more prolonged daily exposure to television. These differences have an impact on an individual’s knowledge about what is going on in the world. As we see from Figure 2.6 and Tables 2.12, 2.13 and 2.14, literacy ability is linked to the sources of older Canadians’ knowledge of current events.

Figure 2.6 Proportion of Canadians aged 65 and over who derive a lot or some of their knowledge of current events from selected daily sources, by source and prose literacy level



In all age groups, those with high levels of prose literacy were much more likely than those with low prose literacy to derive their knowledge of current affairs from newspapers and magazines. For example, 92.9% of high-literacy seniors obtained some or a lot of their knowledge of current events from newspapers, compared with only 64.8% of seniors with low prose literacy. Those with low prose literacy tend to derive their knowledge of current affairs from radio and television, though not to any greater extent than people with high prose literacy. Both high-literacy and low-literacy seniors relied quite heavily on their family, friends or co-workers for a lot or some of their knowledge of current events (63.1% and 62.7% respectively). This is a potentially vital source of information for many people. The quality and usefulness of the information, however, very much depends upon the literacy abilities of the contacts available to these senior citizens.

The percentage point difference between the people with low and high literacy levels who obtain their knowledge of current events from newspapers or magazines (whether ‘a lot or some’ or ‘very little or none’) tends to increase from the youngest age group to the oldest (Tables 2.12 to 2.14). Also important is the fact that people in these older high-literacy age groups tended to increase the proportion of knowledge of current events they derived from newspapers, magazines, radio and television compared to the youngest high-literacy group (25 to 44).

The continued acquisition of knowledge of current events as one ages suggests that literacy skills are not simply static but can be shaped by one’s activities. Unfortunately, this observation is

exactly the opposite for those with low prose literacy. Those in the two oldest age groups (45 to 64 and 65 and over) are relatively less likely than the youngest age group (25 to 44) to derive their current events knowledge from newspapers, magazines and radio. Television is, as discussed above, somewhat more anomalous in this respect. Both high- and low-literacy seniors derive a large amount of their knowledge of current events from this source. Nevertheless, higher-literacy people are able, overall, to gain greater amounts of knowledge from a wider number of sources as they age, while lower-literacy people are relatively more likely to rely on a smaller number of sources (Tables 2.12 to 2.14).

Literacy assistance in everyday life

The relatively low level of literacy observed for older Canadians has implications for their ability to deal with written information in their everyday lives. According to data from IALS, the majority of older Canadians reported that they were able to deal with a variety of written information in their everyday lives without any assistance at all. However, a sizable minority did require varying levels of assistance with certain tasks, and those with lower levels of literacy were much more likely than those with higher levels of literacy to have such a requirement (Table 2.15). For example, over 98% of those aged 65 and over with prose literacy levels of 3 or 4/5 reported that they were able to read the instructions on a medicine bottle or recipe without assistance; however, only about 72% of those 65 years of age and over with prose literacy Level 1 were able to do this. In general, within each age group, those with lower levels of literacy were less likely than those with higher levels to be able to deal with written information entirely on their own.

Observing the results for both sexes, we find that in all age groups, men and women who had higher literacy levels on the selected literacy dimensions required less assistance with the specified tasks than those who had lower literacy (Table 2.16). Little variation was observed between elderly males and females (65 years and older) within the same literacy level. Both are, in general, equally likely to require no assistance with a task. Where there are differences, they occur for low literacy males and females. Low-literacy females (Levels 1 and 2) are slightly more likely to need no assistance with writing notes and letters than low-literacy males (82.5% and 76.8%, respectively). However, a larger proportion of low-literacy males do not need help with information from government agencies and businesses than low-literacy females (72.7% and 64.0% respectively).

An interesting and important component of Table 2.15 and Table 2.16 is the small proportions of seniors with low literacy (Level 1) who need no assistance with information from government agencies, businesses and other institutions, and who need no assistance to fill out forms such as applications and bank deposit slips. In Table 2.15, approximately 58% of seniors at the lowest document literacy level did not need assistance with either of these two forms of information. Of all the information types in Table 2.15, these represented the lowest proportions for which seniors with the lowest literacy skills did not need assistance.

For low-literacy males and females, a similar relationship can be seen in Table 2.16, though the proportions needing no assistance are not as low.¹⁶ Approximately 64% of the lowest-literacy senior females did not need assistance with information from government agencies and businesses, and 67.4% did not need assistance in filling out forms such as applications. The corresponding figures for low-literacy senior males were 72.7% and 68.1%, respectively.

A significant finding from these data is that while large numbers of older Canadians do not require assistance when dealing with written information, a very large minority with the lowest literacy level do require assistance in dealing with information from government agencies, businesses and other institutions. This suggests that such documentation is typically written at a level that is beyond the ability of many seniors to deal with independently. Such results are congruent with findings in the United States where Walmsley and Allington (1982) found that many essential medical and social assistance documents and forms are written at too high a level for many senior

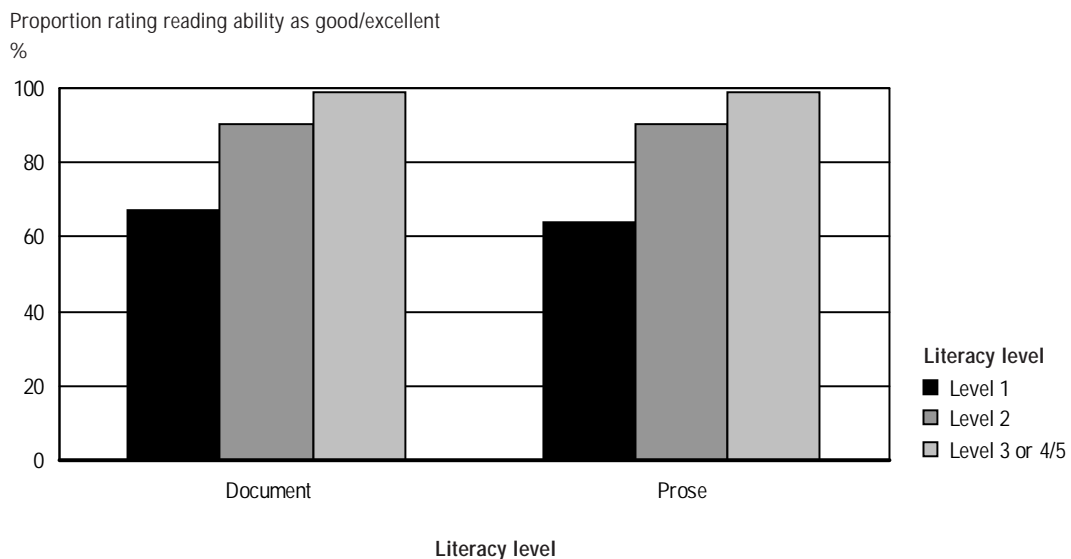
citizens, requiring a Grade 9 level reading ability or higher. These findings are further compounded by the fact that a person’s reading ability is frequently far below the highest level of education he or she has completed (Jackson et al. 1991). Furthermore, as Davis et al. (1996) explain, a person with an adequate reading ability may have a much lower level of understanding. Thus, communication about health care or medical issues written at or above a Grade 9 level is likely to miss a large portion of the people most at risk because it is beyond their ability to read and comprehend.

Adequacy of literacy skills

A sizable minority of older Canadians, particularly those with low levels of education, report requiring assistance in reading various types of materials in their daily life. Presumably this requirement is due to inadequate levels of literacy and these people are aware of that. But what happens when individuals do not realize they have inadequate literacy skills? What is the potential for individuals to misunderstand written material without realizing it?

Data from IALS indicate that many Canadians overestimate their literacy skills and that this is most likely to happen among seniors. For example, 67.1% of seniors (65 and over) who scored at Level 1 on the document literacy test and 90.3% who scored at Level 2, the two lowest levels on the scale, believe that they possess good to excellent reading skills, the two highest perceived ratings (see Figure 2.7 and Table 2.17). This result suggests that there is a large separation occurring between people’s objectively measured ability and their own perceived ability. The separation between actual capacity and perceived ability was also observed when we compared prose literacy and reading skills; 63.8% of Level 1 and 90.5% of Level 2 seniors rated their reading skills as good to excellent. Similar figures are observed for prose literacy abilities against self-rated writing and for quantitative literacy abilities against mathematics proficiency (Table 2.17).

Figure 2.7 Proportion of Canadians aged 65 and over who self-rated their reading skill as excellent or good, by document and prose literacy level

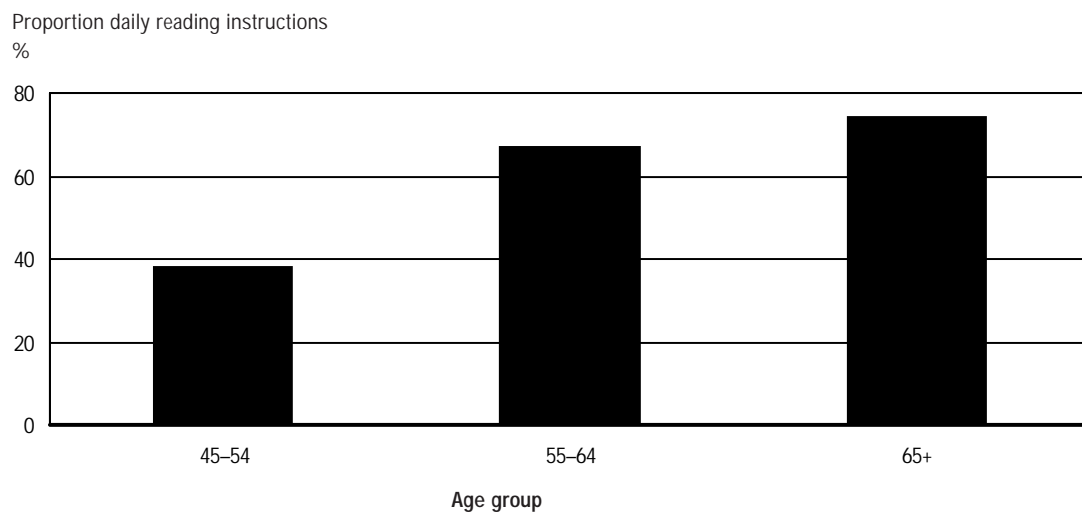


It seems evident, therefore, that large numbers of seniors are unaware that their literacy abilities are not adequate. If we assume that scoring at Level 3 on the literacy scale is reasonable, then quite a few seniors are not scoring at a reasonable level. Furthermore, it follows that many seniors have overestimated their literacy abilities; their objectively measured literacy abilities do not begin to match their self-perceived level of ability. Such a situation presents direct and obvious dangers for the health of these seniors and their ability to comprehend and absorb health information, and indirectly it may lead to confusion and stress.

Indeed, these findings cast the information from Tables 2.15 and 2.16 in a somewhat new light. Given the large proportion of seniors with literacy Level 1 who perceive their abilities to be in excess of their measured literacy skills (Table 2.17), the results in Tables 2.15 and 2.16 should be re-considered. We must look with considerable doubt upon the likelihood that such a large proportion of people aged 65 and over do not, in fact, need assistance with reading the instructions on a medicine bottle, with filling out forms such as applications, or with receiving information from government agencies. Almost two-thirds of seniors with prose literacy Level 1 rate their reading skill for daily life as good or excellent (Table 2.17). Yet an equally large proportion also state that they need no help or assistance with many literacy tasks (see Tables 2.15 and 2.16). Reconciling this conflicting information is difficult. However, the information in Table 2.17 suggests that many seniors have perceptions regarding their literacy abilities that may not match their measured skills. It is likely, therefore, that our results in Tables 2.15 and 2.16 understate fairly severely the proportions of seniors who claim that they do not need assistance with literacy tasks.

One of the obvious dangers that might arise from this situation is the misunderstanding of instructions from medical personnel and pharmacists, as well as of instructions on medicine bottles or medical supplies. As discussed, evidence in the literature suggests that this is a common occurrence for senior citizens and contributes to their poorer health status (Salzman 1995; Weiss, Reed and Kligman 1995; Williams et al. 1995). Figure 2.8 and Table 2.18 summarize the prose literacy levels of Canadians aged 35 and over by age group and frequency of reading instructions on medicine bottles and recipes.

Figure 2.8 Proportion of Canadians with lowest prose literacy levels (1 and 2) who daily read instructions on medicine bottles and in recipes, by age



Younger low-literacy people (35 to 44 and 45 to 54) tend, for the most part, to be relatively less likely to need to read medicine bottle instructions than those with higher literacy. For example, of the 45- to 54-year-olds, only 38.3% of those who need to read such instructions on a daily basis have low literacy, while 61.7% have high literacy. Yet, among those seniors who perform such an activity daily, there is a startlingly high proportion who have low levels of literacy: 74.3% of those 65 and over who read instructions on medicine bottles or in recipes on a daily basis scored at the two lowest levels of prose literacy. Since senior citizens are much more likely to be taking prescription medication, the possibility of improper medication use, misunderstanding or non-compliance is enormous.

Literacy levels are also connected to how older Canadians acquire health-related information. Many times current health information and discussions are covered in health columns in newspapers. Details about new treatments, side effects of drugs or lifestyle changes that could enhance people's health are frequently released to daily newspapers. Certainly such information is no replacement for the expert advice of physicians. Nevertheless, it is the case that such material in a newspaper may alert people to become concerned or motivate them to start asking the appropriate questions of their medical doctor.

Data from IALS reveal that senior citizens with lower levels of literacy are much less likely to read the newspaper section pertaining to home, fashion and health than those with higher levels of prose literacy (Table 2.19). Over 70% of seniors with high literacy levels obtained information from this section of the newspaper, compared with almost 60% of seniors with the lowest literacy levels. That is, fully two-fifths of low-literacy adults 65 and older do not read the section of their newspaper devoted to health topics. Seniors with higher literacy levels, therefore, are more likely to be able to take advantage of health-related information from newspapers.

Our evidence suggests that low-literacy seniors have overly high estimations of their literacy abilities. As discussed in the literature review, the connection between health and literacy demands more than just the ability to read information; it also requires that the people fully understand and absorb the health information that is provided to them (Davis et al. 1996). Unfortunately, the literacy skills of many seniors, objectively measured using IALS, suggests that those with low literacy are unable to consistently perform many literacy tasks with a full understanding of their meaning. As well, these same low-literacy seniors are more likely to have to read medicine prescriptions on a daily basis and are less likely to be exposed to health-related information in newspaper health columns.

In concert with our findings regarding literacy acquisition and assistance, this information points to the health difficulties confronting low-literacy seniors as a result of their poor literacy abilities. What researchers need are large-scale data resources in order to focus more directly on the relationship between health and literacy.

Conclusion

This report demonstrates that the socio-economic environment remains an important determinant of health. Variables such as income and education continue to have direct and indirect effects on people's health status. Yet the role of literacy, particularly for senior citizens, is a relatively neglected aspect of the relationship between the socio-economic environment and health status. The evidence presented here supports the existence of a relationship linking literacy and populations with high health risk among senior citizens. While the International Adult Literacy Survey (1994) does not have a direct measurement of health, our analysis using information from IALS demonstrates that for each of the three literacy measurements—prose, document and quantitative—people with lower literacy levels are more likely to be at highest health risk, with an increased effect on senior citizens. This relationship tends to occur for all age groups and both sexes.

However, the connection between literacy ability and the senior population does not provide a complete picture of how lower levels of literacy affect this at-risk population. Further analysis revealed that a large number of low-literacy senior citizens, who have a relatively higher health risk, require assistance to complete a number of everyday tasks, such as reading government information and filling out forms. In contrast, far fewer of those in the higher-literacy population, where there is a relatively lower health risk, require such help. This relationship remains the same even when sex is taken into account. The need for assistance in literacy and daily tasks severely hinders these individuals. Access to social assistance, health care information and a variety of other health-related programs is directly connected to literacy ability. The health of seniors with low-measured literacy, therefore, is directly affected by their literacy ability.

Our analysis also points out the variety of methods by which people acquire information. It was observed that higher-literacy seniors were more likely to obtain information from a wider selection of sources than their lower-literacy counterparts. While television was a major source of knowledge of current events, those with higher-literacy were more likely than those with lower-literacy to use newspapers and magazines as additional sources of information. As well, it was found that of low-literacy seniors who are likely to read the newspaper, a large proportion were less likely than high-literacy seniors to read the home, fashion and health section.

We also discovered that a large number of senior citizens overestimated their literacy abilities. Those with the lowest-measured literacy abilities, whether prose, document or quantitative, were much more likely to have overestimated their literacy abilities than those with higher literacy scores. Possible dangers to the health of these seniors were observed in the large numbers of low-literacy seniors who needed to take medicine daily and presumably to read and understand medicine-bottle instructions and prescriptions.

The evidence, therefore, shows a link between those at high health risk and those who possess lower levels of literacy, particularly for senior citizens. These individuals face the additional problem of needing assistance with many health care-related areas, such as filling out forms and reading medicine bottles and prescriptions. These problems are further compounded by the fact that many of senior citizens at high health risk are unaware of their limited literacy abilities.

Thus, the findings presented here would seem to support literacy being considered an important policy issue area for health promotion. However, the evidence is indirect, for the most part. Direct measures of health and health activities are needed, in conjunction with literacy measurement and assessment. Unfortunately, IALS does not provide much information that would aid in assessing the link between personal health and literacy. Of course, it was never intended to be. IALS was constructed to provide information about the connections between literacy abilities, the labour force, economic security and employment, and it does this very well. Nevertheless, the literature on the connections between literacy and health and these findings suggest a pressing

need to gain a more direct and detailed insight into these connections, especially for Canada's senior population.

Our results, supported by the health and literacy research, indicate that many of Canada's senior citizens suffer from poor literacy abilities. These people may endanger themselves (for example, by misunderstanding instructions on medication or misreading consent forms) and may affect medical expenditures as well (for example, by misusing medical services). In terms of overall public health, the medical literature and our findings suggest that low literacy affects people's health activities and lifestyles. Each of these literacy domains presents itself as a potentially modifiable health policy area. Given the growing size of Canada's senior population, the forecast of increased use of medications among senior citizens and the tendency of literacy abilities to decline for seniors, there is a pressing need to consider literacy as an important policy issue for health promotion.

Endnotes

1. For the purposes of this study, we have defined “seniors” as all persons aged 65 years old and over.
2. There is no direct measure of an individual’s health in IALS.
3. Johnson (1996) bases these conclusions on a sample of approximately 82 elderly (64 years of age and older) citizens of a rural western community in the U.S.A. While advising that the results of the research must be interpreted with caution, because of the small sample, Johnson nevertheless demonstrates that the findings are consistent with other research on rural elderly in the U.S.A. In addition, Johnson maintains that the study’s information, when compared to the findings of other studies on urban elderly, demonstrates that elderly rural participants appear to have fewer people in their social support networks, decreased levels of social support and lower self-perceptions of health than urban elderly (1996: 64–65).
4. All tables mentioned in the text are contained in Appendix A.
5. Unfortunately, the public-use NPHS does not allow a breakdown by rural/urban differences for all of Canada (Ontario and portions of British Columbia are not broken down by rural/urban residency).
6. To some degree, this point overlooks the fact that educational outcomes vary quite widely in Canada, within and between age groups. This can be observed if we use IALS literacy levels as a proxy for educational attainment; there is, in fact, a wide diversity of outcomes among all of the age groups. Therefore, for example, while some researchers may maintain that there is an increasing homogeneity of educational outcomes, the literacy scores suggest that there continues to be a wide diversity among young groups.
7. Tuijnman’s findings, however, are based on a longitudinal cohort study of men. Their applicability to women is not assessed.
8. An investigation utilizing a multi-variate linear model similar to Ross and Wu (1996) might, however, have yielded a conclusion of convergence.
9. In fact, this large non-response problem with income data does present a problem with the findings to be discussed in Chapter 2 from the International Adult Literacy Survey.
10. This age range is wider than our definition of “senior;” however, it provides evidence suggesting that older patients are significantly more likely to experience these problems. In this respect, the findings are important.
11. The data results in Chapter 2 of this study have been adjusted in order to meet the release requirements of Statistics Canada. Unfortunately, in the analysis of such a specific population and so many variables, the small sample size quickly leads to many results being unacceptable, in accordance with the release guidelines. While many of the results here are considered “marginal” under the release criteria, every effort has been made to follow the guidelines and obtain “acceptable” data results. When that has not been possible, results have been indicated as “marginal.” When the results are “unacceptable,” they have been left out of the tables and figures since they are associated with too high a degree of error for purposes of interpretation.
12. The high non-response rate to the IALS income questions led to our comparing the IALS data to a more valid data source. An analysis of the composition of the IALS income distribution demonstrates that while it is similar to the distribution of income data obtained from the Survey of Consumer Finances (SCF), 1994, it is definitely not the same (Table 2.2). The IALS household income data underestimate the SCF household income categories in most cases. Importantly, they underestimate the middle and higher income categories, except for the category \$70,000 to \$79,999. Furthermore, they overestimate the lowest two income categories, \$20,000 to \$29,999 and less than \$20,000. Our analysis, therefore, was conducted using the education variable rather than household income.
13. Literacy was originally measured at five levels. The IALS microdata release combined the information for Levels 4 and 5, resulting in a four-point scale of literacy. This has been further recoded to a two-level scale for this analysis: low to medium-low (Levels 1 and 2) and medium-high to high (Levels 3 and 4/5).
14. Willms (1997) uses a regression analysis to model the relationship between literacy (prose, document and quantitative) and respondent’s characteristics. The characteristics controlled for include sex, age, language, employment status, income, occupational status, years of education, mother’s and father’s education, father’s occupation, and rural/urban community.
15. Part of the relationship with education could also be due to the likelihood of those with higher levels of education of having higher incomes and therefore being better able to purchase some of the equipment (such as CD players) required to listen to these sources.
16. For Table 2.16 the two lowest levels of literacy are combined, while they are separated in Table 2.15.

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Appendix A

Table 1.1 Health status, by marital status and age

| Age and marital status | Health status | | | Total |
|------------------------|---------------|------|------------------------|-------|
| | Poor to fair | Good | Very good to excellent | |
| | % | | | |
| 25 to 34 | | | | |
| Married ¹ | 4.6 | 21.6 | 73.8 | 100.0 |
| Single ² | 6.2 | 23.6 | 70.1 | 100.0 |
| Total | 5.2 | 22.3 | 72.6 | 100.0 |
| 35 to 44 | | | | |
| Married ¹ | 5.2 | 26.2 | 68.6 | 100.0 |
| Single ² | 10.5 | 23.8 | 65.7 | 100.0 |
| Total | 6.3 | 25.7 | 68.0 | 100.0 |
| 45 to 54 | | | | |
| Married ¹ | 10.0 | 27.5 | 62.5 | 100.0 |
| Single ² | 19.2 | 26.4 | 54.4 | 100.0 |
| Total | 11.9 | 27.2 | 60.8 | 100.0 |
| 55 to 64 | | | | |
| Married ¹ | 16.2 | 32.6 | 51.2 | 100.0 |
| Single ² | 23.9 | 35.0 | 41.1 | 100.0 |
| Total | 18.0 | 33.2 | 48.9 | 100.0 |
| 65 to 74 | | | | |
| Married ¹ | 21.8 | 36.3 | 41.9 | 100.0 |
| Single ² | 17.5 | 31.4 | 41.1 | 100.0 |
| Total | 23.8 | 34.6 | 41.6 | 100.0 |
| 75 and over | | | | |
| Married ¹ | 32.4 | 33.8 | 33.8 | 100.0 |
| Single ² | 31.0 | 30.4 | 38.6 | 100.0 |
| Total | 31.6 | 32.0 | 36.3 | 100.0 |

1. Married refers to couples in marriages and in common-law unions.
 2. Single refers to people who have never married or who are divorced, separated or widowed.
- Note: Percentages in table may not add to 100 due to rounding.

Table 1.2 Health status of older Canadians, by marital status, sex and age

| Sex, age and marital status | Health status | | | Total |
|-----------------------------|---------------|------|------------------------|-------|
| | Poor to fair | Good | Very good to excellent | |
| | % | | | |
| Men, 55 to 64 | | | | |
| Married ¹ | 15.8 | 32.0 | 52.2 | 100.0 |
| Single ² | 24.1* | 37.1 | 38.8 | 100.0 |
| Total | 17.2 | 32.8 | 50.0 | 100.0 |
| Women, 55 to 64 | | | | |
| Married ¹ | 16.6 | 33.3 | 50.1 | 100.0 |
| Single ² | 23.7 | 34.0 | 42.3 | 100.0 |
| Total | 18.6 | 33.5 | 47.9 | 100.0 |
| Men, 65 to 74 | | | | |
| Married ¹ | 24.2 | 33.3 | 42.4 | 100.0 |
| Single ² | 24.5 | 36.6 | 38.9 | 100.0 |
| Total | 24.3 | 34.1 | 41.6 | 100.0 |
| Women, 65 to 74 | | | | |
| Married ¹ | 19.2 | 39.5 | 41.4 | 100.0 |
| Single ² | 28.8 | 29.2 | 42.0 | 100.0 |
| Total | 23.3 | 35.1 | 41.6 | 100.0 |
| Men, 75 and over | | | | |
| Married ¹ | 31.9 | 34.5 | 33.6 | 100.0 |
| Single ² | 25.3* | 36.2 | 38.5 | 100.0 |
| Total | 30.1 | 35.0 | 34.9 | 100.0 |
| Women, 75 and over | | | | |
| Married ¹ | 33.1 | 32.7 | 34.2 | 100.0 |
| Single ² | 32.4 | 28.9 | 38.7 | 100.0 |
| Total | 32.6 | 30.1 | 37.3 | 100.0 |

1. Married refers to couples in marriages and in common-law unions.

2. Single refers to people who have never married or who are divorced, separated or widowed.

* Figures are "qualified" under NPHS release guidelines.

Note: Percentages in table may not add to 100 due to rounding.

Table 1.3 Health status, by sex and age

| Age and sex | Health status | | | Total |
|--------------------|---------------|------|------------------------|-------|
| | Poor to fair | Good | Very good to excellent | |
| | % | | | |
| 25 to 34 | | | | |
| Men | 4.0 | 21.1 | 74.9 | 100.0 |
| Women | 6.3 | 23.3 | 70.4 | 100.0 |
| Total | 5.2 | 22.3 | 72.6 | 100.0 |
| 35 to 44 | | | | |
| Men | 5.0 | 25.4 | 69.6 | 100.0 |
| Women | 7.7 | 26.1 | 66.3 | 100.0 |
| Total | 6.3 | 25.7 | 68.0 | 100.0 |
| 45 to 54 | | | | |
| Men | 11.1 | 26.1 | 62.8 | 100.0 |
| Women | 12.8 | 28.5 | 58.6 | 100.0 |
| Total | 11.9 | 27.3 | 60.8 | 100.0 |
| 55 to 64 | | | | |
| Men | 17.2 | 32.8 | 50.0 | 100.0 |
| Women | 19.6 | 33.5 | 47.9 | 100.0 |
| Total | 18.0 | 33.2 | 48.9 | 100.0 |
| 65 to 74 | | | | |
| Men | 24.3 | 34.1 | 41.6 | 100.0 |
| Women | 23.3 | 35.1 | 41.6 | 100.0 |
| Total | 23.8 | 34.6 | 41.6 | 100.0 |
| 75 and over | | | | |
| Men | 30.1 | 35.0 | 34.9 | 100.0 |
| Women | 32.6 | 30.1 | 37.3 | 100.0 |
| Total | 31.6 | 32.0 | 36.3 | 100.0 |

Note: Percentages in table may not add to 100 due to rounding.

Table 1.4 Health status, by ownership of dwelling and age

| Age and ownership of dwelling | Health status | | | Total | Total number |
|-------------------------------|---------------|------|------------------------|-------|--------------|
| | Poor to fair | Good | Very good to excellent | | |
| | % | | | | |
| 25 to 34 | | | | | |
| Owned | 4.6 | 21.1 | 74.3 | 100.0 | 2,800,900 |
| Not owned | 6.0 | 23.9 | 70.1 | 100.0 | 1,953,700 |
| Total | 5.2 | 22.2 | 72.6 | 100.0 | 4,754,600 |
| 35 to 44 | | | | | |
| Owned | 5.0 | 24.4 | 70.6 | 100.0 | 3,667,300 |
| Not owned | 10.4 | 29.8 | 59.8 | 100.0 | 1,197,100 |
| Total | 6.3 | 25.7 | 68.0 | 100.0 | 4,864,300 |
| 45 to 54 | | | | | |
| Owned | 10.8 | 25.8 | 63.3 | 100.0 | 2,847,900 |
| Not owned | 16.6 | 33.5 | 49.9 | 100.0 | 654,700 |
| Total | 11.9 | 27.3 | 60.8 | 100.0 | 3,502,600 |
| 55 to 64 | | | | | |
| Owned | 15.8 | 33.3 | 50.9 | 100.0 | 1,949,300 |
| Not owned | 26.3 | 32.7 | 41.1 | 100.0 | 512,500 |
| Total | 18.0 | 33.2 | 48.9 | 100.0 | 2,461,800 |
| 65 to 74 | | | | | |
| Owned | 21.2 | 34.1 | 44.8 | 100.0 | 1,515,500 |
| Not owned | 31.0 | 36.1 | 32.9 | 100.0 | 544,500 |
| Total | 23.8 | 34.6 | 41.6 | 100.0 | 2,059,900 |
| 75 and over | | | | | |
| Owned | 31.0 | 32.8 | 36.3 | 100.0 | 776,200 |
| Not owned | 32.9 | 30.6 | 36.4 | 100.0 | 414,900 |
| Total | 31.6 | 32.0 | 36.3 | 100.0 | 1,191,100 |

Note: Percentages in table may not add to 100 due to rounding.

Table 1.5 Health status, by highest level of education and age

| Age and highest level of education | Health status | | | Total | Total number |
|------------------------------------|---------------|------|------------------------|-------|--------------|
| | Poor to fair | Good | Very good to excellent | | |
| | % | | | | |
| 25 to 34 | | | | | |
| Completed high school | 7.6 | 26.7 | 65.7 | 100.0 | 1,487,700 |
| Some postsecondary | 6.4 | 24.2 | 69.4 | 100.0 | 1,264,100 |
| Completed postsecondary | 2.6* | 17.6 | 79.8 | 100.0 | 2,002,200 |
| Total | 5.2 | 22.2 | 72.6 | 100.0 | 4,753,900 |
| 35 to 44 | | | | | |
| Completed high school | 8.9 | 32.8 | 58.3 | 100.0 | 1,660,000 |
| Some postsecondary | 6.1* | 24.7 | 69.2 | 100.0 | 1,260,200 |
| Completed postsecondary | 4.2 | 20.3 | 75.4 | 100.0 | 1,939,300 |
| Total | 6.3 | 25.7 | 67.9 | 100.0 | 4,859,600 |
| 45 to 54 | | | | | |
| Completed high school | 15.6 | 30.3 | 54.1 | 100.0 | 1,439,200 |
| Some postsecondary | 10.7 | 25.6 | 63.7 | 100.0 | 769,700 |
| Completed postsecondary | 8.7 | 25.1 | 66.3 | 100.0 | 1,285,000 |
| Total | 12.0 | 27.3 | 60.7 | 100.0 | 3,494,000 |
| 55 to 64 | | | | | |
| Completed high school | 24.0 | 33.6 | 42.4 | 100.0 | 1,278,800 |
| Some postsecondary | 13.4 | 36.4 | 50.2 | 100.0 | 500,500 |
| Completed postsecondary | 9.5* | 30.4 | 60.1 | 100.0 | 673,900 |
| Total | 17.8 | 33.3 | 48.9 | 100.0 | 2,453,100 |
| 65 to 74 | | | | | |
| Completed high school | 26.9 | 36.9 | 36.2 | 100.0 | 1,337,600 |
| Some postsecondary | 20.7 | 28.9 | 50.4 | 100.0 | 339,400 |
| Completed postsecondary | 13.5 | 32.4 | 54.1 | 100.0 | 371,100 |
| Total | 23.4 | 34.8 | 41.8 | 100.0 | 2,048,100 |
| 75 and over | | | | | |
| Completed high school | 35.9 | 33.2 | 30.9 | 100.0 | 807,000 |
| Some postsecondary | 17.4 | 35.4 | 47.2 | 100.0 | 197,400 |
| Completed postsecondary | 27.4 | 24.1 | 48.5 | 100.0 | 183,400 |
| Total | 31.5 | 32.1 | 36.3 | 100.0 | 1,187,800 |

* Figures are "qualified" under NPHS release guidelines.

Note: Percentages in table may not add to 100 due to rounding.

Table 1.6 Health status, by highest level of education, sex and age

| Age, sex and highest level of education | Health status | | | Total |
|--|---------------|------|------------------------|-------|
| | Poor to fair | Good | Very good to excellent | |
| | % | | | |
| Men, 25 to 44 | | | | |
| Completed high school | 6.0 | 28.8 | 65.2 | 100.0 |
| Some postsecondary and completed postsecondary | 3.9 | 20.7 | 75.4 | 100.0 |
| Total | 4.5 | 23.3 | 72.2 | 100.0 |
| Women, 25 to 44 | | | | |
| Completed high school | 10.4 | 31.0 | 58.6 | 100.0 |
| Some postsecondary and completed postsecondary | 5.2 | 21.5 | 73.3 | 100.0 |
| Total | 7.0 | 24.7 | 68.3 | 100.0 |
| Men, 45 to 64 | | | | |
| Completed high school | 19.4 | 31.1 | 49.5 | 100.0 |
| Some postsecondary and completed postsecondary | 8.9 | 27.0 | 64.1 | 100.0 |
| Total | 13.5 | 28.8 | 57.7 | 100.0 |
| Women, 45 to 64 | | | | |
| Completed high school | 19.7 | 32.5 | 47.8 | 100.0 |
| Some postsecondary and completed postsecondary | 11.3 | 29.2 | 59.5 | 100.0 |
| Total | 15.3 | 30.8 | 54.0 | 100.0 |
| Men, 65 and over | | | | |
| Completed high school | 29.5 | 37.6 | 32.9 | 100.0 |
| Some postsecondary and completed postsecondary | 19.1 | 29.5 | 51.4 | 100.0 |
| Total | 25.7 | 34.6 | 39.7 | 100.0 |
| Women, 65 and over | | | | |
| Completed high school | 30.8 | 34.1 | 35.1 | 100.0 |
| Some postsecondary and completed postsecondary | 18.5 | 31.3 | 50.2 | 100.0 |
| Total | 26.9 | 33.2 | 39.9 | 100.0 |

Note: Percentages in table may not add to 100 due to rounding.

Table 1.7 Health status, by household income and age

| Age and household income | Health status | | | Total | Total number |
|-------------------------------|---------------|------|------------------------|-------|--------------|
| | Poor to fair | Good | Very good to excellent | | |
| | % | | | | |
| 25 to 34 | | | | | |
| Lowest to lower-middle income | 9.6 | 33.8 | 56.6 | 100.0 | 790,700 |
| Middle income | 6.1* | 24.2 | 69.7 | 100.0 | 1,257,900 |
| Upper-middle to upper income | 3.5 | 18.0 | 78.5 | 100.0 | 2,528,400 |
| Total | 5.2 | 22.4 | 72.3 | 100.0 | 4,577,000 |
| 35 to 44 | | | | | |
| Lowest to lower-middle income | 12.2 | 32.7 | 55.1 | 100.0 | 676,900 |
| Middle income | 7.2 | 34.0 | 58.8 | 100.0 | 1,340,000 |
| Upper-middle to upper income | 4.4 | 19.9 | 75.7 | 100.0 | 2,639,000 |
| Total | 6.3 | 25.8 | 67.8 | 100.0 | 4,655,800 |
| 45 to 54 | | | | | |
| Lowest to lower-middle income | 28.7 | 32.6 | 38.7 | 100.0 | 399,500 |
| Middle income | 14.8 | 27.8 | 57.3 | 100.0 | 718,300 |
| Upper-middle to upper income | 8.0 | 26.0 | 66.0 | 100.0 | 2,213,700 |
| Total | 12.0 | 27.2 | 60.8 | 100.0 | 3,331,500 |
| 55 to 64 | | | | | |
| Lowest to lower-middle income | 33.8 | 31.2 | 35.0 | 100.0 | 432,600 |
| Middle income | 20.7 | 35.2 | 44.1 | 100.0 | 679,200 |
| Upper-middle to upper income | 11.1 | 32.6 | 56.3 | 100.0 | 1,199,200 |
| Total | 18.2 | 33.1 | 48.7 | 100.0 | 2,311,000 |
| 65 to 74 | | | | | |
| Lowest to lower-middle income | 35.2 | 29.8 | 35.0 | 100.0 | 431,600 |
| Middle income | 23.7 | 39.2 | 37.1 | 100.0 | 833,300 |
| Upper-middle to upper income | 15.1 | 33.1 | 51.9 | 100.0 | 673,800 |
| Total | 23.3 | 35.0 | 41.8 | 100.0 | 1,938,700 |
| 75 and over | | | | | |
| Lowest to lower-middle income | 31.0 | 34.1 | 34.9 | 100.0 | 361,100 |
| Middle income | 38.2 | 31.0 | 30.8 | 100.0 | 491,100 |
| Upper-middle to upper income | 20.4 | 30.3 | 49.3 | 100.0 | 280,600 |
| Total | 31.5 | 31.8 | 36.7 | 100.0 | 1,132,800 |

* Figures are "qualified" under NPHS release guidelines.

Note: Percentages in table may not add to 100 due to rounding.

Table 1.8 Health status, by household income, sex and age

| Sex, age and household income | Health status | | | Total | Total number |
|-------------------------------|---------------|------|------------------------|-------|--------------|
| | Poor to fair | Good | Very good to excellent | | |
| | % | | | | |
| Men, 25 to 44 | | | | | |
| Lowest to lower-middle income | 7.8* | 34.1 | 58.1 | 100.0 | 646,700 |
| Middle income | 4.7* | 27.8 | 67.6 | 100.0 | 1,246,300 |
| Upper-middle to upper income | 3.7 | 19.1 | 77.2 | 100.0 | 2,686,400 |
| Total | 4.6 | 23.6 | 71.9 | 100.0 | 4,579,400 |
| Women, 25 to 44 | | | | | |
| Lowest to lower-middle income | 13.1 | 32.7 | 54.2 | 100.0 | 820,800 |
| Middle income | 8.5 | 30.7 | 60.8 | 100.0 | 1,351,500 |
| Upper-middle to upper income | 4.1 | 18.9 | 77.0 | 100.0 | 2,481,000 |
| Total | 7.0 | 24.7 | 68.3 | 100.0 | 4,653,300 |
| Men, 45 to 64 | | | | | |
| Lowest to lower-middle income | 32.4 | 34.3 | 33.3 | 100.0 | 350,700 |
| Middle income | 18.7 | 30.4 | 50.9 | 100.0 | 650,300 |
| Upper-middle to upper income | 8.3 | 27.0 | 64.7 | 100.0 | 1,819,700 |
| Total | 13.7 | 28.7 | 57.6 | 100.0 | 2,820,700 |
| Women, 45 to 64 | | | | | |
| Lowest to lower-middle income | 30.6 | 30.1 | 39.3 | 100.0 | 481,400 |
| Middle income | 16.8 | 32.3 | 50.9 | 100.0 | 747,200 |
| Upper-middle to upper income | 10.1 | 29.8 | 60.1 | 100.0 | 1,593,200 |
| Total | 15.4 | 30.5 | 54.1 | 100.0 | 2,821,800 |
| Men, 65 and over | | | | | |
| Lowest to lower-middle income | 29.2 | 38.2 | 32.6 | 100.0 | 249,100 |
| Middle income | 31.3 | 34.9 | 33.8 | 100.0 | 599,500 |
| Upper-middle to upper income | 17.3 | 32.3 | 50.4 | 100.0 | 477,300 |
| Total | 25.8 | 34.6 | 39.5 | 100.0 | 1,325,900 |
| Women, 65 and over | | | | | |
| Lowest to lower-middle income | 35.2 | 28.8 | 36.0 | 100.0 | 543,600 |
| Middle income | 27.2 | 37.2 | 35.6 | 100.0 | 724,900 |
| Upper-middle to upper income | 16.0 | 32.2 | 51.8 | 100.0 | 477,000 |
| Total | 26.6 | 33.2 | 40.1 | 100.0 | 1,745,600 |

* Figures are "qualified" under NPHS release guidelines.

Note: Percentages in table may not add to 100 due to rounding.

Table 2.1 Literacy ability, by age and selected literacy type

| Literacy type and age | Literacy level | | Total | Total number |
|-----------------------|---------------------------|------------------------------|-------|--------------|
| | Level 1 and 2 (lowest) | Level 3 and 4/5 (highest) | | |
| | % | | | |
| Prose | | | | |
| 16-24 | 35.3 | 64.7 | 100.0 | 3,369,900 |
| 25-34 | 44.8 | 55.2 | 100.0 | 4,554,000 |
| 35-44 | 29.9 | 70.1 | 100.0 | 4,526,600 |
| 45-54 | 45.8 | 54.2 | 100.0 | 3,565,800 |
| 55-64 | 64.2 | 35.8* | 100.0 | 2,184,100 |
| 65+ | 79.1 | 20.9* | 100.0 | 3,107,500 |
| Document | | | | |
| 16-24 | 32.7 | 67.3 | 100.0 | 3,369,900 |
| 25-34 | 38.4 | 61.6 | 100.0 | 4,554,000 |
| 35-44 | 36.6 | 63.4 | 100.0 | 4,526,600 |
| 45-54 | 49.2 | 50.8 | 100.0 | 3,565,800 |
| 55-64 | 67.2 | 32.8* | 100.0 | 2,184,100 |
| 65+ | 79.3 | 20.7* | 100.0 | 3,107,500 |
| Quantitative | | | | |
| 16-24 | 39.5 | 60.5 | 100.0 | 3,369,900 |
| 25-34 | 39.0 | 61.0 | 100.0 | 4,554,000 |
| 35-44 | 32.7 | 67.3 | 100.0 | 4,526,600 |
| 45-54 | 51.6 | 48.4 | 100.0 | 3,565,800 |
| 55-64 | 61.0 | 39.0* | 100.0 | 2,184,100 |
| 65+ | 79.1 | 20.9* | 100.0 | 3,107,500 |

* Figures are "marginal" as determined by IALS release guidelines.

Note: Percentages in table may not add to 100 due to rounding.

Table 2.2 Household income distribution for the International Adult Literacy Survey (IALS) 1994 and the Survey of Consumer Finances (SCF) 1994

| Household income | IALS 1994 | SCF 1994 |
|--------------------|-----------|----------|
| | % | |
| Less than \$20,000 | 20.8 | 14.1 |
| \$20,000-\$29,999 | 13.3 | 10.9 |
| \$30,000-\$39,999 | 11.6 | 13.2 |
| \$40,000-\$49,999 | 11.6 | 14.2 |
| \$50,000-\$59,999 | 11.4 | 13.3 |
| \$60,000-\$69,999 | 9.0 | 10.5 |
| \$70,000-\$79,999 | 8.5 | 7.7 |
| \$80,000 or more | 13.8 | 16.2 |

Note: Percentages in table may not add to 100 due to rounding.

Table 2.3 Prose literacy level of older Canadians, by highest level of education and age

| Age and highest level of education | Prose literacy level | | | Total number |
|------------------------------------|------------------------|---------------------------|-------|--------------|
| | Level 1 and 2 (lowest) | Level 3 and 4/5 (highest) | Total | |
| | % | | | |
| 45 to 54 | | | | |
| Some high school or less | 57.8 | — | 32.7 | 1,152,000 |
| Completed high school or more | 42.2* | 88.6 | 67.3 | 2,373,900 |
| Total | 100.0 | 100.0 | 100.0 | 3,525,900 |
| 55 to 64 | | | | |
| Some high school or less | 73.8 | 38.9* | 61.2 | 1,329,600 |
| Completed high school or more | 26.2* | 61.1 | 38.8* | 841,400 |
| Total | 100.0 | 100.0 | 100.0 | 2,171,000 |
| 65 and over | | | | |
| Some high school or less | 71.0 | — | 61.2 | 1,874,500 |
| Completed high school or more | 29.0* | 75.9 | 38.8 | 1,189,600 |
| Total | 100.0 | 100.0 | 100.0 | 3,064,100 |

* Figures are “marginal” as determined by IALS release guidelines.

— Indicates calculated figures “unacceptable” as determined by IALS release guidelines.

Note: Percentages in table may not add to 100 due to rounding.

Table 2.4 Document literacy level of older Canadians, by highest level of education and age

| Age and highest level of education | Document literacy level | | | Total number |
|------------------------------------|-------------------------|---------------------------|-------|--------------|
| | Level 1 and 2 (lowest) | Level 3 and 4/5 (highest) | Total | |
| | % | | | |
| 45 to 54 | | | | |
| Some high school or less | 56.7 | — | 32.7 | 1,152,000 |
| Completed high school or more | 43.3 | 90.2 | 67.3 | 2,373,900 |
| Total | 100.0 | 100.0 | 100.0 | 3,525,900 |
| 55 to 64 | | | | |
| Some high school or less | 69.4 | 44.7* | 61.2 | 1,329,600 |
| Completed high school or more | 30.6* | 55.3* | 38.8* | 841,400 |
| Total | 100.0 | 100.0 | 100.0 | 2,171,000 |
| 65 and over | | | | |
| Some high school or less | 70.9 | — | 61.2 | 1,874,500 |
| Completed high school or more | 29.1* | 76.1* | 38.8 | 1,189,600 |
| Total | 100.0 | 100.0 | 100.0 | 3,064,100 |

* Figures are “marginal” as determined by IALS release guidelines.

— Indicates calculated figures “unacceptable” as determined by IALS release guidelines.

Note: Percentages in table may not add to 100 due to rounding.

Table 2.5 Quantitative literacy level of older Canadians, by highest level of education and age

| Age and highest level of education | Quantitative literacy level | | | Total number |
|------------------------------------|-----------------------------|---------------------------|-------|--------------|
| | Level 1 and 2 (lowest) | Level 3 and 4/5 (highest) | Total | |
| | | % | | |
| 45 to 54 | | | | |
| Some high school or less | 55.0 | — | 32.7 | 1,152,000 |
| Completed high school or more | 45.0 | 91.2 | 67.3 | 2,373,900 |
| Total | 100.0 | 100.0 | 100.0 | 3,525,900 |
| 55 to 64 | | | | |
| Some high school or less | 72.6 | 43.6* | 61.2 | 1,329,600 |
| Completed high school or more | 27.4* | 56.4* | 38.8* | 841,400 |
| Total | 100.0 | 100.0 | 100.0 | 2,171,000 |
| 65 and over | | | | |
| Some high school or less | 72.8 | — | 61.2 | 1,874,500 |
| Completed high school or more | 27.2* | 82.6 | 38.8 | 1,189,600 |
| Total | 100.0 | 100.0 | 100.0 | 3,064,100 |

* Figures are “marginal” as determined by IALS release guidelines.

— Indicates calculated figures “unacceptable” as determined by IALS release guidelines.

Note: Percentages in table may not add to 100 due to rounding.

Table 2.6 Prose literacy level, by highest level of education, sex and age

| Sex, age and highest level of education | Prose literacy level | | | Total number |
|---|------------------------|---------------------------|-------|--------------|
| | Level 1 and 2 (lowest) | Level 3 and 4/5 (highest) | Total | |
| | | % | | |
| Men, 25 to 44 | | | | |
| Some high school or less | 37.1* | 13.7* | 23.3 | 1,032,600 |
| Completed high school or more | 62.9 | 86.3 | 76.7 | 3,399,600 |
| Total | 100.0 | 100.0 | 100.0 | 4,432,200 |
| Women, 25 to 44 | | | | |
| Some high school or less | 47.6 | 11.7* | 24.0 | 1,079,400 |
| Completed high school or more | 52.4 | 88.3 | 76.0 | 3,410,000 |
| Total | 100.0 | 100.0 | 100.0 | 4,489,400 |
| Men, 45 to 64 | | | | |
| Some high school or less | 63.1 | 20.1* | 45.0 | 1,270,400 |
| Completed high school or more | 36.9* | 79.9 | 55.0 | 1,555,500 |
| Total | 100.0 | 100.0 | 100.0 | 2,825,800 |
| Women, 45 to 64 | | | | |
| Some high school or less | 67.7 | 18.8* | 42.2 | 1,211,300 |
| Completed high school or more | 32.3* | 81.2 | 57.8 | 1,659,800 |
| Total | 100.0 | 100.0 | 100.0 | 2,871,100 |
| Men, 65 and over | | | | |
| Some high school or less | 71.8 | — | 60.3 | 799,400 |
| Completed high school or more | 28.2* | 78.7* | 39.7 | 526,100 |
| Total | 100.0 | 100.0 | 100.0 | 1,325,500 |
| Women, 65 and over | | | | |
| Some high school or less | 70.5 | — | 61.8 | 1,075,200 |
| Completed high school or more | 29.5* | 73.5* | 38.2 | 663,400 |
| Total | 100.0 | 100.0 | 100.0 | 1,738,600 |

* Figures are “marginal” as determined by IALS release guidelines.

— Indicates calculated figures “unacceptable” as determined by IALS release guidelines.

Note: Percentages in table may not add to 100 due to rounding.

Table 2.7 Document literacy level, by highest level of education, sex and age

| Sex, age and highest level of education | Document literacy level | | | Total number |
|---|-------------------------|---------------------------|-------|--------------|
| | Level 1 and 2 (lowest) | Level 3 and 4/5 (highest) | Total | |
| | % | | | |
| Men, 25 to 44 | | | | |
| Some high school or less | 71.5 | — | 60.3 | 1,032,600 |
| Completed high school or more | 28.5* | 75.5 | 39.7 | 3,399,600 |
| Total | 100.0 | 100.0 | 100.0 | 4,432,200 |
| Women, 25 to 44 | | | | |
| Some high school or less | 42.9* | 11.1* | 24.0 | 1,079,400 |
| Completed high school or more | 57.1 | 88.9 | 76.0 | 3,410,000 |
| Total | 100.0 | 100.0 | 100.0 | 4,489,400 |
| Men, 45 to 64 | | | | |
| Some high school or less | 61.3 | — | 45.0 | 1,270,400 |
| Completed high school or more | 38.7* | 81.1 | 55.0 | 1,555,500 |
| Total | 100.0 | 100.0 | 100.0 | 2,825,800 |
| Women, 45 to 64 | | | | |
| Some high school or less | 63.9 | 20.3* | 42.2 | 1,211,300 |
| Completed high school or more | 36.1* | 79.7 | 57.8 | 1,659,800 |
| Total | 100.0 | 100.0 | 100.0 | 2,871,100 |
| Men, 65 and over | | | | |
| Some high school or less | 71.5 | — | 60.3 | 799,400 |
| Completed high school or more | 28.5* | 75.5* | 39.7 | 526,100 |
| Total | 100.0 | 100.0 | 100.0 | 1,325,500 |
| Women, 65 and over | | | | |
| Some high school or less | 70.5 | — | 61.8 | 1,075,200 |
| Completed high school or more | 29.5* | 76.6* | 38.2 | 663,400 |
| Total | 100.0 | 100.0 | 100.0 | 1,738,600 |

* Figures are "marginal" as determined by IALS release guidelines.

— Indicates calculated figures "unacceptable" as determined by IALS release guidelines.

Note: Percentages in table may not add to 100 due to rounding.

Table 2.8 Quantitative literacy level, by highest level of education, sex and age

| Sex, age and highest level of education | Quantitative literacy level | | | Total number |
|---|-----------------------------|---------------------------|-------|--------------|
| | Level 1 and 2 (lowest) | Level 3 and 4/5 (highest) | Total | |
| | | % | | |
| Men, 25 to 44 | | | | |
| Some high school or less | 45.6 | 11.1* | 23.3 | 1,152,000 |
| Completed high school or more | 54.4 | 88.9 | 76.7 | 3,399,600 |
| Total | 100.0 | 100.0 | 100.0 | 4,432,200 |
| Women, 25 to 44 | | | | |
| Some high school or less | 49.2 | 9.8* | 24.0 | 1,079,400 |
| Completed high school or more | 50.8 | 90.2 | 76.0 | 3,410,000 |
| Total | 100.0 | 100.0 | 100.0 | 4,489,400 |
| Men, 45 to 64 | | | | |
| Some high school or less | 64.2 | 19.4* | 45.0 | 1,270,400 |
| Completed high school or more | 35.8* | 80.6 | 55.0 | 1,555,500 |
| Total | 100.0 | 100.0 | 100.0 | 2,825,800 |
| Women, 45 to 64 | | | | |
| Some high school or less | 60.5 | 21.3* | 42.2 | 1,211,300 |
| Completed high school or more | 39.5* | 78.7 | 57.8 | 1,659,800 |
| Total | 100.0 | 100.0 | 100.0 | 2,871,100 |
| Men, 65 and over | | | | |
| Some high school or less | 73.7 | — | 60.3 | 799,400 |
| Completed high school or more | 26.3* | 76.7* | 39.7 | 526,100 |
| Total | 100.0 | 100.0 | 100.0 | 1,325,500 |
| Women, 65 and over | | | | |
| Some high school or less | 72.2 | — | 61.8 | 1,075,200 |
| Completed high school or more | 27.8* | 89.6 | 38.2 | 663,400 |
| Total | 100.0 | 100.0 | 100.0 | 1,738,600 |

* Figures are "marginal" as determined by IALS release guidelines.

— Indicates calculated figures "unacceptable" as determined by IALS release guidelines.

Note: Percentages in table may not add to 100 due to rounding.

Table 2.9 Prose literacy level, by age and proportion performing selected activities daily

| Selected activity and age | Prose literacy level | | Total number |
|---|---------------------------|------------------------------|--------------|
| | Level 1 and 2 (lowest) | Level 3 and 4/5 (highest) | |
| | % | | |
| Read newspapers/magazines | | | |
| 16-24 | 41.5* | 47.2 | 1,519,500 |
| 25-34 | 62.2 | 53.7 | 2,606,100 |
| 35-44 | 50.5 | 63.7 | 2,685,000 |
| 45-54 | 56.9 | 79.0 | 2,438,000 |
| 55-64 | 48.8 | 92.6 | 1,374,700 |
| 65+ | 62.0 | 80.1 | 2,021,100 |
| Total | 55.5 | 63.8 | 12,644,400 |
| Read books | | | |
| 16-24 | 27.6* | 37.6 | 1,146,500 |
| 25-34 | 21.5* | 39.3 | 1,423,600 |
| 35-44 | 20.6* | 47.4 | 1,778,700 |
| 45-54 | 17.4* | 42.1 | 1,093,400 |
| 55-64 | 18.0* | 67.1* | 770,600 |
| 65+ | 30.4* | 60.6* | 1,138,100 |
| Total | 23.1 | 44.9 | 7,350,900 |
| Listen to radio, CDs, tapes, records, etc. | | | |
| 16-24 | 87.1 | 93.9 | 3,079,900 |
| 25-34 | 90.9 | 86.2 | 4,007,800 |
| 35-44 | 84.4 | 88.0 | 3,909,500 |
| 45-54 | 86.1 | 94.8 | 3,226,400 |
| 55-64 | 82.1 | 89.6 | 1,819,100 |
| 65+ | 76.4 | 79.8 | 2,387,900 |
| Total | 84.0 | 89.5 | 18,430,700 |
| Watch television | | | |
| 16-24 | 94.8 | 86.9 | 3,020,000 |
| 25-34 | 92.0 | 86.6 | 4,040,600 |
| 35-44 | 89.3 | 86.1 | 3,906,000 |
| 45-54 | 90.5 | 91.5 | 3,232,800 |
| 55-64 | 94.1 | 89.3 | 1,975,700 |
| 65+ | 92.9 | 90.3 | 2,860,900 |
| Total | 92.2 | 87.7 | 19,036,100 |

* Figures are "marginal" as determined by IALS release guidelines.

Table 2.10 Prose literacy level, by amount of time spent watching TV or videos daily and age

| Age and amount of time | Prose literacy level | | Total | Total number |
|-----------------------------|------------------------|---------------------------|-------|--------------|
| | Level 1 and 2 (lowest) | Level 3 and 4/5 (highest) | | |
| | % | | | |
| 45 to 54 | | | | |
| None to less than two hours | 52.6 | 82.4 | 68.8 | 2,444,500 |
| Two hours or more | 47.4 | 17.6* | 31.2 | 1,107,700 |
| Total | 100.0 | 100.0 | 100.0 | 3,552,200 |
| 55 to 64 | | | | |
| None to less than two hours | 38.6* | 57.6* | 45.5 | 974,900 |
| Two hours or more | 61.4 | 42.4* | 54.5 | 1,165,600 |
| Total | 100.0 | 100.0 | 100.0 | 2,140,500 |
| 65 and over | | | | |
| None to less than two hours | 36.1 | 50.0* | 39.0 | 1,209,200 |
| Two hours or more | 63.9 | 50.0* | 61.0 | 1,887,500 |
| Total | 100.0 | 100.0 | 100.0 | 3,096,800 |

* Figures are “marginal” as determined by IALS release guidelines.

Note: Percentages in table may not add to 100 due to rounding.

Table 2.11 Prose literacy level, by amount of time spent watching TV or videos daily, sex and age

| Sex, age and amount of time | Prose literacy level | | Total | Total number |
|-----------------------------|------------------------|---------------------------|-------|--------------|
| | Level 1 and 2 (lowest) | Level 3 and 4/5 (highest) | | |
| | % | | | |
| Men, 25 to 44 | | | | |
| None to less than two hours | 51.8 | 75.2 | 65.7 | 2,946,800 |
| Two hours or more | 48.2 | 24.8* | 34.3 | 1,539,700 |
| Total | 100.0 | 100.0 | 100.0 | 4,486,500 |
| Women, 25 to 44 | | | | |
| None to less than two hours | 54.7 | 64.3 | 61.1 | 2,776,300 |
| Two hours or more | 45.3 | 35.7 | 38.9 | 1,766,100 |
| Total | 100.0 | 100.0 | 100.0 | 4,542,400 |
| Men, 45 to 64 | | | | |
| None to less than two hours | 57.2 | 77.1 | 65.7 | 1,828,000 |
| Two hours or more | 42.8* | 22.9* | 34.3 | 953,100 |
| Total | 100.0 | 100.0 | 100.0 | 2,781,100 |
| Women, 45 to 64 | | | | |
| None to less than two hours | 33.7* | 73.8 | 54.7 | 1,591,400 |
| Two hours or more | 66.3 | 26.2* | 45.3 | 1,320,200 |
| Total | 100.0 | 100.0 | 100.0 | 2,911,600 |
| Men, 65 and over | | | | |
| None to less than two hours | 33.8* | — | 34.1* | 452,700 |
| Two hours or more | 66.2 | 65.1* | 65.9 | 876,200 |
| Total | 100.0 | 100.0 | 100.0 | 1,329,000 |
| Women, 65 and over | | | | |
| None to less than two hours | 37.8* | 63.0* | 42.8* | 756,500 |
| Two hours or more | 62.2 | — | 57.2 | 1,011,300 |
| Total | 100.0 | 100.0 | 100.0 | 1,767,800 |

* Figures are “marginal” as determined by IALS release guidelines.

— Indicates calculated figures “unacceptable” as determined by IALS release guidelines.

Note: Percentages in table may not add to 100 due to rounding.

Table 2.12 Prose literacy level for Canadians aged 25 to 44, by amount of current events knowledge derived from selected sources

| Source and amount of current events knowledge | Prose literacy level | | Total number |
|---|------------------------|---------------------------|--------------|
| | Level 1 and 2 (lowest) | Level 3 and 4/5 (highest) | |
| | % | | |
| Newspapers | | | |
| A lot or some | 72.4 | 84.2 | 7,204,100 |
| Very little or none | 27.6 | 15.8* | 1,814,500 |
| Total | 100.0 | 100.0 | 9,018,600 |
| Magazines | | | |
| A lot or some | 41.8 | 53.0 | 7,672,100 |
| Very little or none | 58.2 | 47.0 | 1,197,300 |
| Total | 100.0 | 100.0 | 8,869,300 |
| Radio | | | |
| A lot or some | 84.2 | 87.3 | 7,768,300 |
| Very little or none | 15.8* | 12.7* | 1,247,100 |
| Total | 100.0 | 100.0 | 9,015,400 |
| Television | | | |
| A lot or some | 83.5 | 88.4 | 7,806,600 |
| Very little or none | 16.5* | 11.6* | 1,213,000 |
| Total | 100.0 | 100.0 | 9,019,600 |
| Family, friends, co-workers | | | |
| A lot or some | 73.0 | 73.1 | 6,583,800 |
| Very little or none | 27.0 | 26.9 | 2,427,800 |
| Total | 100.0 | 100.0 | 9,011,600 |

* Figures are "marginal" as determined by IALS release guidelines.

Note: Percentages in table may not add to 100 due to rounding.

Table 2.13 Prose literacy level for Canadians aged 45 to 64, by amount of current events knowledge derived from selected sources

| Source and amount of current events knowledge | Prose literacy level | | Total number |
|---|------------------------|---------------------------|--------------|
| | Level 1 and 2 (lowest) | Level 3 and 4/5 (highest) | |
| | % | | |
| Newspapers | | | |
| A lot or some | 65.4 | 96.1 | 4,563,500 |
| Very little or none | 34.6 | — | 1,139,600 |
| Total | 100.0 | 100.0 | 5,703,100 |
| Magazines | | | |
| A lot or some | 37.4 | 67.9 | 2,959,600 |
| Very little or none | 62.6 | 32.1* | 2,742,700 |
| Total | 100.0 | 100.0 | 5,702,300 |
| Radio | | | |
| A lot or some | 82.2 | 90.7 | 4,918,000 |
| Very little or none | 17.8* | — | 785,100 |
| Total | 100.0 | 100.0 | 5,703,100 |
| Television | | | |
| A lot or some | 94.7 | 94.4 | 5,392,500 |
| Very little or none | — | — | 309,900 |
| Total | 100.0 | 100.0 | 5,702,500 |
| Family, friends, co-workers | | | |
| A lot or some | 66.4 | 76.0 | 4,048,800 |
| Very little or none | 33.6 | 24.0* | 1,654,300 |
| Total | 100.0 | 100.0 | 5,703,100 |

* Figures are “marginal” as determined by IALS release guidelines.

— Indicates calculated figures “unacceptable” as determined by IALS release guidelines.

Note: Percentages in table may not add to 100 due to rounding.

Table 2.14 Prose literacy level for Canadians aged 65 and over, by amount of current events knowledge derived from selected sources

| Source and amount of current events knowledge | Prose literacy level | | Total number |
|---|------------------------|---------------------------|--------------|
| | Level 1 and 2 (lowest) | Level 3 and 4/5 (highest) | |
| | % | | |
| Newspapers | | | |
| A lot or some | 64.8 | 92.9 | 2,188,500 |
| Very little or none | 35.2* | — | 906,400 |
| Total | 100.0 | 100.0 | 3,094,800 |
| Magazines | | | |
| A lot or some | 29.1* | 74.6* | 1,196,300 |
| Very little or none | 70.9 | — | 1,898,100 |
| Total | 100.0 | 100.0 | 3,094,400 |
| Radio | | | |
| A lot or some | 74.2 | 84.4* | 2,363,000 |
| Very little or none | 25.8* | — | 732,100 |
| Total | 100.0 | 100.0 | 3,095,000 |
| Television | | | |
| A lot or some | 91.4 | 96.5 | 2,862,400 |
| Very little or none | — | — | 232,600 |
| Total | 100.0 | 100.0 | 3,095,000 |
| Family, friends, co-workers | | | |
| A lot or some | 62.7 | 63.1* | 1,939,300 |
| Very little or none | 37.3 | 36.9* | 1,149,200 |
| Total | 100.0 | 100.0 | 3,088,500 |

* Figures are “marginal” as determined by IALS release guidelines.

— Indicates calculated figures “unacceptable” as determined by IALS release guidelines.

Note: Percentages in table may not add to 100 due to rounding.

Table 2.15 Selected literacy type and level for older Canadians requiring no assistance with selected activities, by age

| Selected activity and age | Literacy level | | | Total |
|--|-----------------------------|---------|-----------------|-------|
| | Level 1 | Level 2 | Level 3 and 4/5 | |
| | % | | | |
| | Prose literacy level | | | |
| Newspaper articles | | | | |
| 45-54 | 67.2 | 97.1 | 98.9 | 92.4 |
| 55-64 | 56.8* | 95.2 | 99.9 | 82.2 |
| 65+ | 82.5 | 98.2 | 100.0 | 90.6 |
| | Prose literacy level | | | |
| Information from government agencies, businesses and other institutions | | | | |
| 45-54 | 47.6* | 94.2 | 91.4 | 83.8 |
| 55-64 | 38.9* | 78.7 | 93.2 | 68.7 |
| 65+ | 58.1 | 84.9 | 96.4 | 73.7 |
| | Document literacy level | | | |
| Filling out forms such as applications, bank deposit slips, etc. | | | | |
| 45-54 | 60.8 | 90.4 | 95.7 | 87.3 |
| 55-64 | 50.6* | 90.9 | 96.2 | 75.2 |
| 65+ | 58.2 | 92.0 | 98.0 | 74.0 |
| | Prose literacy level | | | |
| Reading instructions on a medicine bottle | | | | |
| 45-54 | 65.3 | 99.7 | 96.9 | 91.7 |
| 55-64 | 49.7* | 83.6 | 98.2 | 76.0 |
| 65+ | 72.0 | 97.0 | 98.6 | 84.6 |
| | Prose literacy level | | | |
| Reading instructions on packaged goods in stores and supermarkets | | | | |
| 45-54 | 72.9 | 99.5 | 98.9 | 94.2 |
| 55-64 | 54.5* | 86.0 | 99.1 | 78.7 |
| 65+ | 78.2 | 96.4 | 99.9 | 87.9 |
| | Quantitative literacy level | | | |
| With basic arithmetic (adding, subtracting, multiplying, dividing) | | | | |
| 45-54 | 76.4 | 90.8 | 100.0 | 92.2 |
| 55-64 | 59.6* | 97.2 | 99.9 | 83.4 |
| 65+ | 75.8 | 96.8 | 99.1 | 86.3 |
| | Prose literacy level | | | |
| Writing notes and letters | | | | |
| 45-54 | 63.9 | 96.9 | 97.3 | 90.9 |
| 55-64 | 47.9* | 89.7 | 99.6 | 77.3 |
| 65+ | 71.6 | 95.7 | 99.8 | 84.2 |

* Figures are "marginal" as determined by IALS release guidelines.

Table 2.16 Selected literacy type and level for older Canadians requiring no assistance with selected activities, by sex and age

| Selected activity, sex and age | Literacy level | | Total |
|--|---------------------------|------------------------------|-------|
| | Level 1 and 2 (lowest) | Level 3 and 4/5 (highest) | |
| % Prose literacy level | | | |
| Newspaper articles | | | |
| Men | | | |
| 45-54 | 81.1 | 98.9 | 89.9 |
| 55-64 | 61.2 | 99.9 | 74.1 |
| 65+ | 88.5 | 100.0 | 91.1 |
| Women | | | |
| 45-54 | 88.4 | 98.8 | 94.5 |
| 55-64 | 86.2 | 100.0 | 91.8 |
| 65+ | 87.7 | 100.0 | 90.1 |
| Prose literacy level | | | |
| Information from government agencies, businesses and other institutions | | | |
| Men | | | |
| 45-54 | 67.9 | 97.4 | 82.5 |
| 55-64 | 48.5* | 97.6 | 64.8 |
| 65+ | 72.7 | 97.4 | 78.3 |
| Women | | | |
| 45-54 | 82.0 | 87.1 | 85.0 |
| 55-64 | 62.8* | 88.8 | 73.3 |
| 65+ | 64.0 | 95.4 | 70.2 |
| Document literacy level | | | |
| Filling out forms such as applications, bank deposit slips, etc. | | | |
| Men | | | |
| 45-54 | 74.6 | 99.1 | 85.4 |
| 55-64 | 55.2* | 95.3 | 68.2 |
| 65+ | 68.1 | 98.2 | 75.3 |
| Women | | | |
| 45-54 | 82.7 | 93.4 | 88.8 |
| 55-64 | 76.3 | 97.2 | 83.6 |
| 65+ | 67.4 | 97.9 | 73.1 |
| Prose literacy level | | | |
| Reading instructions on a medicine bottle | | | |
| Men | | | |
| 45-54 | 78.7 | 96.2 | 87.4 |
| 55-64 | 50.8* | 98.8 | 66.8 |
| 65+ | 82.4 | 97.4 | 85.8 |
| Women | | | |
| 45-54 | 92.4 | 97.5 | 95.4 |
| 55-64 | 79.6 | 97.5 | 86.9 |
| 65+ | 79.7 | 99.8 | 83.7 |
| Prose literacy level | | | |
| Reading instructions on packaged goods in stores and supermarkets | | | |
| Men | | | |
| 45-54 | 84.6 | 98.9 | 91.7 |
| 55-64 | 51.3* | 98.3 | 67.0 |
| 65+ | 82.4 | 100.0 | 86.4 |
| Women | | | |
| 45-54 | 92.6 | 98.9 | 96.3 |
| 55-64 | 87.5 | 100.0 | 92.5 |
| 65+ | 86.4 | 99.8 | 89.0 |

Table 2.16 Selected literacy type and level for older Canadians requiring no assistance with selected activities, by sex and age (Concluded)

| Selected activity, sex and age | Literacy level | | Total |
|---|-----------------------------|------------------------------|-------|
| | Level 1 and 2 (lowest) | Level 3 and 4/5 (highest) | |
| | % | | |
| | Quantitative literacy level | | |
| With basic arithmetic (adding, subtracting, multiplying, dividing) | | | |
| Men | | | |
| 45-54 | 88.0 | 100.0 | 93.4 |
| 55-64 | 65.9 | 99.8 | 80.0 |
| 65+ | 82.6 | 98.4 | 86.8 |
| Women | | | |
| 45-54 | 81.7 | 100.0 | 91.2 |
| 55-64 | 79.8 | 100.0 | 87.4 |
| 65+ | 83.1 | 100.0 | 85.9 |
| | Prose literacy level | | |
| Writing notes and letters | | | |
| Men | | | |
| 45-54 | 73.2 | 95.2 | 84.1 |
| 55-64 | 48.5* | 99.4 | 65.4 |
| 65+ | 76.8 | 100.0 | 82.1 |
| Women | | | |
| 45-54 | 93.6 | 98.9 | 96.7 |
| 55-64 | 85.4 | 99.9 | 91.3 |
| 65+ | 82.5 | 99.6 | 85.9 |

* Figures are "marginal" as determined by IALS release guidelines.

Table 2.17 Self-rated ability in writing, reading and mathematics of people aged 65 and over, by selected literacy type and level

| Selected literacy type and level | Self-rated ability in: | | | Total | Total number |
|----------------------------------|------------------------|-------------------|-------|-----------|--------------|
| | Poor to moderate | Good to excellent | | | |
| | % | | | | |
| | Reading | | | | |
| Document literacy | | | | | |
| Level 1 | 32.9* | 67.1 | 100.0 | 1,662,700 | |
| Level 2 | — | 90.3 | 100.0 | 682,500 | |
| Level 3 and 4/5 | — | 98.7 | 100.0 | 644,700 | |
| | Reading | | | | |
| Prose literacy | | | | | |
| Level 1 | 36.2* | 63.8 | 100.0 | 1,477,300 | |
| Level 2 | — | 90.5 | 100.0 | 863,100 | |
| Level 3 and 4/5 | — | 99.4 | 100.0 | 649,500 | |
| | Mathematics | | | | |
| Quantitative literacy | | | | | |
| Level 1 | 46.6 | 53.4 | 100.0 | 1,545,800 | |
| Level 2 | — | 85.7 | 100.0 | 818,300 | |
| Level 3 and 4/5 | — | 91.4 | 100.0 | 649,800 | |
| | Writing | | | | |
| Prose literacy | | | | | |
| Level 1 | 48.1 | 51.9 | 100.0 | 1,462,900 | |
| Level 2 | — | 84.3 | 100.0 | 863,100 | |
| Level 3 and 4/5 | — | 94.3 | 100.0 | 649,500 | |

* Figures are "marginal" as determined by IALS release guidelines.

— Indicates calculated figures "unacceptable" as determined by IALS release guidelines.

Note: Percentages in table may not add to 100 due to rounding.

Table 2.18 Frequency of reading instructions on medicine bottles and in recipes, by prose literacy level and age

| Age and prose literacy level | | Frequency | | | Total |
|------------------------------|-----|-----------|-----------------------------------|--|-----------|
| | | Daily | A few times a week to once a week | Less than once a week to rarely or never | |
| 35 to 44 | | | | | |
| Level 1 and 2 (lowest) | % | — | 26.9* | 34.5* | 29.5 |
| Level 3 and 4/5 (highest) | % | 78.2 | 73.1 | 65.5 | 70.5 |
| Total percent | % | 100.0 | 100.0 | 100.0 | 100.0 |
| Total number | No. | 835,000 | 1,591,600 | 2,069,800 | 4,496,400 |
| 45 to 54 | | | | | |
| Level 1 and 2 (lowest) | % | 38.3* | 42.4* | 51.8 | 45.6 |
| Level 3 and 4/5 (highest) | % | 61.7* | 57.6 | 48.2 | 54.4 |
| Total percent | % | 100.0 | 100.0 | 100.0 | 100.0 |
| Total number | No. | 832,600 | 1,130,600 | 1,589,300 | 3,552,500 |
| 55 to 64 | | | | | |
| Level 1 and 2 (lowest) | % | 66.8* | 56.2* | 68.0 | 63.5 |
| Level 3 and 4/5 (highest) | % | — | 43.8* | 32.0* | 36.5 |
| Total percent | % | 100.0 | 100.0 | 100.0 | 100.0 |
| Total number | No. | 207,300 | 797,700 | 1,138,400 | 2,143,400 |
| 65 and over | | | | | |
| Level 1 and 2 (lowest) | % | 74.3 | 70.9 | 86.2 | 78.9 |
| Level 3 and 4/5 (highest) | % | — | 29.1* | — | 21.1 |
| Total percent | % | 100.0 | 100.0 | 100.0 | 100.0 |
| Total number | No. | 713,600 | 911,100 | 1,449,200 | 3,074,000 |

* Figures are “marginal” as determined by IALS release guidelines.

— Indicates calculated figures “unacceptable” as determined by IALS release guidelines.

Note: Percentages in table may not add to 100 due to rounding.

Table 2.19 Proportion of people who generally read the home, fashion and health section of the newspaper, by prose literacy level and age

| Age and prose literacy level | | Read home, fashion and health section | | | Total number |
|------------------------------|--|---------------------------------------|-------|-------|--------------|
| | | Yes | No | Total | |
| | | % | | | |
| 35 to 44 | | | | | |
| Level 1 and 2 (lowest) | | 64.5 | 35.5* | 100.0 | 1,265,900 |
| Level 3 and 4/5 (highest) | | 67.5 | 32.5 | 100.0 | 3,097,600 |
| Total | | 66.6 | 33.4 | 100.0 | 4,363,600 |
| 45 to 54 | | | | | |
| Level 1 and 2 (lowest) | | 63.2 | 36.8* | 100.0 | 1,557,400 |
| Level 3 and 4/5 (highest) | | 77.9 | 22.1* | 100.0 | 1,922,600 |
| Total | | 71.3 | 28.7 | 100.0 | 3,480,000 |
| 55 to 64 | | | | | |
| Level 1 and 2 (lowest) | | 51.6 | 48.4* | 100.0 | 1,204,900 |
| Level 3 and 4/5 (highest) | | 84.6 | — | 100.0 | 782,200 |
| Total | | 64.6 | 35.4* | 100.0 | 1,987,100 |
| 65 and over | | | | | |
| Level 1 and 2 (lowest) | | 59.6 | 40.4* | 100.0 | 2,056,700 |
| Level 3 and 4/5 (highest) | | 70.4 | — | 100.0 | 645,100 |
| Total | | 62.2 | 37.8 | 100.0 | 2,701,800 |

* Figures are “marginal” as determined by IALS release guidelines.

— Indicates calculated figures “unacceptable” as determined by IALS release guidelines.

Note: Percentages in table may not add to 100 due to rounding.

International Adult Literacy Survey

Monograph Series

The International Adult Literacy Survey (IALS) was a seven-country initiative conducted in the fall of 1994. Its goal was to create comparable literacy profiles across national, linguistic and cultural boundaries. Successive waves of the survey now encompass close to 30 countries around the world.

The Monograph Series features detailed studies from the IALS database by literacy scholars and experts in Canada and the United States. The research is primarily funded by Human Resources Development Canada. Monographs focus on current policy issues and cover topics such as adult training, literacy skill match and mismatch in the workplace, seniors' literacy skills and health, literacy and economic security, and many others.