CJNR 2003, Vol. 35 N° 4, 126–149

Résumé

Facteurs associés à la durée de la consommation des anxiolytiques, des sédatifs et des hypnotiques chez les personnes âgées

Philippe Voyer, Michael McCubbin, Michel Préville et Richard Boyer

Plus de deux décennies de recherche descriptive sur les facteurs associés à l'usage des psychotropes chez les personnes âgées n'ont pas permis d'aboutir à des résultats convergents. Les auteurs avancent que la durée de la consommation pourrait avoir brouillé les résultats des études antérieures, étant donné que les variables influant sur la consommation initiale pourraient être différentes de celles qui influent sur la consommation de longue durée. Ils ont procédé à une analyse secondaire des sujets interrogés lors de l'Enquête de santé menée au Québec en 1998 (n = 3,012). Les résultats démontrent clairement que les facteurs associés à la consommation variaient en fonction de la durée de celle-ci. Le cas de la dépression mis à part, les facteurs d'ordre médical et de santé mentale prépondérants associés à l'usage à court terme ne pouvaient être associés à la consommation à long terme. Les seuls facteurs susceptibles d'expliquer la consommation de longue durée mais non la consommation de courte durée étaient le sexe (féminin) et la perception de l'état de santé (moins que positive). Ces conclusions indiquent qu'il est peu probable que ce soit les bienfaits thérapeutiques pour la santé mentale qui expliquent un recours prolongé à ces médicaments. Les auteurs émettent l'hypothèse que l'accoutumance aux médicaments pourrait être en jeu. Ils encouragent par conséquent les infirmières en santé communautaire à mettre en œuvre des programmes de sevrage dans la perspective de réduire la nocivité de la consommation de longue durée.

Mots clés : psychotropes, personnes âgées, consommation de longue durée, consommation de courte durée, anxiolytiques, hypnotiques, sédatifs, accoutumance, sevrage

CJNR 2003, Vol. 35 N° 4, 126–149

Factors in Duration of Anxiolytic, Sedative, and Hypnotic Drug Use in the Elderly

Philippe Voyer, Michael McCubbin, Michel Préville, and Richard Boyer

At least 2 decades of descriptive research on factors associated with psychotropic drug use by the elderly in the community has failed to yield convergent results. The authors posited that duration of use may have been confounding results of previous studies, since variables influencing initial use may not be those influencing long-term use. They conducted a secondary analysis of the elderly respondents in the cross-sectional 1998 Quebec Health Survey (n = 3,012). Results clearly show that factors associated with ASH use vary with duration of use. Apart from depression, medical and mental health factors significant for short-term use are not associated with long-term use. The only factors found that explain long-term but not short-term use were gender (female) and health perception (less than positive). These findings suggest that over the long term it is unlikely that mental health therapeutic benefits explain ASH use. The authors hypothesize that drug dependency could play a role in long-term use. They therefore encourage community health nurses to implement withdrawal programs in order to reduce harmful long-term consumption.

Keywords: psychotropic, elderly, long-term use, short-term use, tranquillizer, anxiolytic, hypnotic, sedative, benzodiazepine, addiction, withdrawal

Introduction

The use among the elderly of psychotropic drugs, most of which are anxiolytics, sedatives, or hypnotics (ASH) in the tranquillizer class of psychotropics, has been attracting considerable research interest. This interest has developed in a context of increasing use of ASH over the past decades (Caces, Harford, & Aitken, 1998), while during this same period it has become clear that much ASH use does not respect standards in the medical literature. Most notably: (a) ASH are widely prescribed for mental health conditions like depression for which they are not indicated (Kelman & Mayer-Oakes, 1994); (b) they are usually administered for long periods, which is contraindicated; and (c) they are prescribed at much higher rates for elderly people, particularly the very old, than for younger people, despite the fact that the risks associated with ASH use increase with age (Glazer & Zawadski, 1981; Jenkins, 1976; Linden et al., 1999).

The prevalence of psychotropic use by the elderly living in the community is high, varying from 25% to 48% (Statistics Canada, 1994; Tamblyn et al., 1994; Wancata, Benda, Meise, & Müller, 1997). Although use of tranquillizers for more than 30 days is contraindicated due to a lack of evidence for efficacy of sustained use (Allen, 1986; Thomson & Smith, 1995) and the risks of dependence, more than half of elderly users are long-term consumers of those drugs (Blazer, Hybels, Simonsick, & Hanlon, 2000b; Tamblyn et al.). In Canada, 69% of elderly persons using tranquillizers have been taking them for at least 1 year (Statistics Canada).

The negative consequences of psychotropic use among the elderly are significant and varied. They can include cognitive loss, falls and other injuries, psychomotor slowing, delirium, and, consequent to these problems in addition to overdose, hospitalization (Berg & Dellasega, 1996; Dealberto, McAvay, Seeman, & Berkman, 1997; Ebly, Hogan, & Fung, 1997; Paterniti, Dufouil, & Alpérovitch, 2002; Ray, 1992; Tromp et al., 2001). Former use of benzodiazepines has also been associated with dementia (Lagnaoui et al., 2002) and modest functional declines among elderly people when also controlling for prior health conditions (Gray et al., 2002). Finally, it is estimated that 17% to 50% of psychotropic drug prescriptions for the elderly in Canada are inappropriate (Tamblyn et al., 1994; Thomson & Smith, 1995).

Factors Associated with Elderly Psychotropic Use

Inappropriate prescribing of or long-term use of psychotropic drugs in the elderly population unnecessarily increases the risks that the elderly are particularly vulnerable to. These risks can be offset by the therapeutic benefits for persons with mental health problems. However, epidemiological studies clearly demonstrate that the mental health of the elderly is not the only factor determining psychotropic use. Indeed, while most studies have found an association between mental health status and psychotropic use (Dealberto, Seeman, McAvay, & Berkman, 1997; Kirby et al., 1999), several have not (Blazer, Hybels, Simonsick, & Hanlon, 2000a; Lyndon & Russell, 1990; Newman & Hassan, 1999). The ambiguous or relatively weak relationship of mental health status and psychotropic use suggests that the risks posed by these drugs are not always counter-balanced by their therapeutic benefits. This reinforces the argument that psychotropics are being inappropriately prescribed for elderly persons (e.g., excessive renewals, inadequate examination of the patient, failure to fully consider risks for that patient, inadequate consideration of treatment alternatives) (see Mort & Aparasu, 2002; Talerico, 2002).

In order to reduce inappropriate use we need to know why it occurs. In other words, what factors, apart from mental health status,

determine psychotropic use among the elderly? This question has been addressed by many researchers in recent decades (Linjakumpu et al., 2002), yet there have been no convergent results. For example, although some researchers have found significant results for age (Chen, Dewey, Avery, & the Analysis Group of the MRCCFA Study, 2001; Taylor, McCracken, Wilson, & Copeland, 1998), gender (Colvez, Carrière, Castex, & Favier, 2002; Gleason et al., 1998), marital status (Fourrier, Letenneur, Dartigues, Moore, & Bégaud, 2001; Jorm, Grayson, Creasey, Waite, & Broe, 2000), education (Allard, Allaire, Leclerc, & Langlois, 1995; Gleason et al.), and health perception (Blazer et al., 2000a; Gustafsson, Isacson, Thorslund, & Sörbom, 1996), these findings have not been supported by other studies addressing the same factors — for example, age (Allard et al.; Larose, 1996), gender (Mayer-Oakes et al., 1993; Pérodeau, King, & Ostoj, 1992), marital status (Koenig, Rüther, & Filipiak, 1987; Gleason et al.), education (Blazer et al., 2000b; Pérodeau & Galbaud du Fort, 2000), and health perception (Antonijoan, Barbanoj, Torrent, & Jane, 1990).

The above are some of the key studies assessing these factors; the pattern of conflicting results in other studies paints the same confusing picture. The absence of strong evidence on the phenomenon hinders nurses from intervening in an effective and meaningful way in order to reduce inappropriate use of psychotropic drugs by elderly persons living in the community.

The Duration-of-Use Hypothesis

Methodological aspects of these studies could explain some of the conflicting results, but issues that have been ignored could also be contributing factors. One possible explanation, tentatively supported by existing research and clinical experience, is that *duration* influences some factors associated with the use of psychotropics — or, conversely, that some factors influence the duration of use but not necessarily in the same way that they influence *initial* use. Our hypothesis in the present study was that several factors influencing initial use are less important or unimportant in influencing long-term use, and that some factors (not necessarily those posited in the literature) tend to structure duration (but not necessarily initial use). For instance, the chief determinant of long-term use is initial use. It is 15 times more likely that an initial elderly user will still be a user 3 years later than to be a non-user (by comparison, the odds ratio is only 4.7 for being depressed) (Dealberto, McAvay, et al., 1997). This raises the hypothesis that the likelihood of psychotropic long-term use by the elderly is related more to an "unknown factor" than to mental health status.

The "Unknown Factor" in Long-Term Use: Three Candidates

Dependency. It is possible that dependency and fear of withdrawal symptoms explain the long-term use of psychotropic drugs (Cohen & Collin, 1997). Surprisingly, although theoretical approaches to understanding this problem are emerging in the literature (e.g., Borg & Larsson, 2001), epidemiological research has not investigated the role of dependency in long-term use. This seems inexplicable given the ample evidence that psychotropics like ASH can be addictive and tend to be used for periods much longer than recommended in the literature, and despite evidence that mental health status is not the only determinant of such use. The proposition that dependence contributes to long-term use is partially supported by one study which demonstrated that 71% of middle-aged psychotropic users wanted to stop using them; half of these stated that they feared stopping because of withdrawal symptoms (Ettore, Klaukka, & Riska, 1994).

Lack of physician reassessments. Researchers have also demonstrated that doctors' prescription patterns differ according to duration of consumption (Damestoy, Collin, & Lalande, 1999). Seniors in one study (n = 48) stated that visits to their physician seldom included reassessment of the relevance of the drug (Voyer, 2001), which implies that even when the problem that initially led to the prescription finally diminishes or disappears, medication use frequently continues. While the first psychotropic drug prescription is likely a response to psychological distress, depression, or insomnia, these factors might be less associated with renewals some time later.

Differential cost-benefit analysis for elderly as opposed to younger people. For those considering whether to continue or end psychotropic use, the risk-benefit assessment is quite different for seniors and for young adults; the risks in taking these drugs generally accumulate over prolonged use, whereas the risks in terminating include withdrawal symptoms, which are immediate and can be painful. The lower life expectancy of elderly people can affect such cost-benefit assessment, placing greater weight on current benefits and less on future costs. The assessment of many seniors that the costs of quitting psychotropics exceed the net benefits of continuing them is supported by Voyer's (2001) study in which seniors were interviewed.

Pertinence of Duration Factors: Research for Nurses

The evidence cited above, while not exhaustive of the pertinent literature, seems adequate to support the argument that duration of use contributes to the confused picture in the literature regarding the factors and circumstances that influence the use or cessation of psychotropics. This

critical public health issue has barely been addressed by Canadian nurses. There is almost no nursing research on the topic in the literature, nor are there nursing clinical guidelines on how to intervene with respect to psychotropic use among seniors (Voyer, 2001; Voyer, Lauzon, Collin, & McCubbin, 2003). More generally, research on the determinants of psychotropic use has made no distinction between short- and long-term consumers.

Nurses could play an important role in helping long-term users deal with dependency issues around benzodiazepines, the psychotropic most commonly used by seniors. While there is growing awareness of the risks of benzodiazepine use, including dependency, many seniors were first prescribed them during an earlier era when these drugs were frequently prescribed and physicians held them to be non-habit-forming. Hence today there is a sizeable cohort of persons with not short- or medium-term but very long-term dependency — which renders withdrawal all the more difficult (Isacson, 1997; Ohayon, Caulet, & Lemoine, 1996; Statistics Canada, 1994). Accordingly, the problem of unnecessary long-term use has drawn the attention of a sizeable body of researchers (Cohen & Collin, 1997; McLeod, Hung, Tamblyn, & Gayton, 1997; Tamblyn et al., 1994). This issue undoubtedly requires levers for action; it is impossible to find them without ascertaining the determinants of not only initial use, but also, and separately, *continued* use. Similarly, we need to know whether continued and long-term use alter the fundamental determinants of consumption.

Hypothesis of This Research

Our hypothesis was that various factors are associated with long-term as opposed to short-term use of psychotropic drugs by the elderly living in the community. This paper considers what these findings might imply for nursing practice with elderly people in the community.

Method: The Quebec Health Study

The 1998 cross-sectional Quebec Health Survey (Institut de la statistique du Québec) reached 30,386 individuals in 15,409 households (institutionalized persons were excluded). Households were randomly selected using a multi-stage sampling design in 16 regions (out of 18; Inuit or Cree territories were excluded); the sample represented 97.4% of Quebec's population. Methodological issues and details of the sampling procedure are discussed in Daveluy et al. (2001).

Each senior was interviewed face-to-face, in either French or English, regarding diseases, disabilities, activity limitations, health-care utilization, and medication use. Participants were then asked to complete a ques-

tionnaire on health habits, health perception, and mental health. The response rate was 82.1%. The interviewers were professional interviewers from the Institut de la statistique du Québec (ISQ). From this sample we drew all persons aged 65 years and older (n = 3,012) for completion of a secondary data analysis.

Ethics

Two Quebec laws regulate access to these data in order to protect the confidentiality of respondents *(Loi sur l'Institut de la statistique du Québec* and *Loi sur l'accès aux documents des organismes publiques et sur la protection des renseignements personnels).* Pursuant to those laws, the principal investigator signed a contract with the ISQ in which he agreed not to divulge, during or after the research, the identities of respondents. Further, as required by the ISQ, prior to our accessing the data (restricted to the offices of the ISQ), the data were masked (denominalized) to hinder identification of respondents.

Variables

Sociodemographics. These included age (65–74, 75–84, 85 and older); gender; education (0–9 years, 10–13 years, attended university); marital status (married, divorced/separated, widowed, single); and personal income (0–$19,999, $20,000–49,999, $50,000 or more, in Canadian dollars).

Social support. Low or high social support was assessed using seven questions on the nature and frequency of social activities, how leisure time was spent, satisfaction with social life, types of close family relationships, how many people the respondent could confide in, how many people would help in time of need, and how many people were close to or felt affection for the respondent (for details see Audet, Lemieux, & Cardin, 2001).

Physical health. Perceived health status was assessed using the question "In general, compared with other persons your age, would you say your health is (1) excellent, (2) very good, (3) good, (4) fair, or (5) poor?" Fourrier et al. (2001) found perceived poor health in the elderly to be related to ASH use, and it has long been established that perceived health status is strongly correlated with diagnosed health status and mortality (e.g., Golstein, Siegel, & Boyer, 1984; Mossey & Shapiro, 1982; Ware, 1986). For logistic regression, categories 4 and 5 were retained but categories 1 to 3 were collapsed into one: health status perceived as "positive."

Depression. Respondents were asked "Are you afflicted by a depression?"

Nervous problems. Respondents were presented with two questions "Have you felt preoccupied or nervous in the last week?" and "Have you been through either a period of high tenseness or irritability?" An affirmative answer to both questions was taken to indicate the presence of nervous problems.

Psychological distress. The 14-item short version (Préville, Boyer, Potvin, Perrault, & Légaré, 1992) of the 29-item Psychiatric Symptoms Index (PSI) (Ilfeld, 1976) was used to assess anxiety, depression, anger, and cognitive problems. Validity and reliability of the PSI are well established in English for the full Index (Ilfeld, 1976, 1978; Préville et al., 1992) and in French for the short version (Préville, Potvin, & Boyer, 1995). Respondents were asked about experience and frequency, from (1) never, to (5) almost always, of various symptoms over the previous month. For example: "… I had the feeling that I had wasted my life" or "… I lacked self-confidence." Scores of up to 70 were grouped into levels of psychological distress characterized as low (less than 15), intermediate (15–28), or high (at least 29).

Medical visits. Respondents were asked if they had consulted a physician during the previous 2 weeks.

Medications use. To minimize recall bias, respondents were asked about amounts taken in the previous 2 days of various categories of medications, including ASH. Then, the number of medications taken was calculated. Respondents were then asked how long they had been using each drug; answers were grouped into categories of 0–6 months, 7–11 months, and at least 12 months.

Data Analysis

Data were weighted to infer results to the target population as suggested by Quebec Health Survey investigators (Daveluy et al., 2001), on the basis of individual selection probability, variance of the sampling plan, refusal, age, sex, and geographical area. Frequencies and chi-square tests (on whether ASH were taken at all during the previous 2 days) were calculated using SAS 8.0.

Bivariate analyses were performed for each variable, for two purposes. The first was to assess the level of association between all independent variables with the use of ASH for the four different groups of consumers (all those who had used ASH; ASH use less than 6 months; ASH use 7–11 months; ASH use 12 months or more). The second purpose of the bivariate analyses was to assess for multicollinearity between independent variables according to the method described by Besley, Kuh, and Welsch (1980). Due to high multicollinearity between income and education, the former was excluded from further analysis. Then, statistically significant variables were tested again for their association with ASH use while

Table 1 *Bivariate Analysis Between Factors and ASH Use*

Independent Variables	Total Population (n = 3,012)	ASH Use		
	%	Yes (%)	No (%)	(Chi²) $P<$
ASH use	16.5	16.5	83.5	
Age				0.0155
65–74 years	64.6	14.7	85.3	
75–84 years	30.1	19.8	80.2	
85 years and over	5.3	22.1	77.9	
Sex				0.0001★
Female	57.5	19.8	80.3	
Male	42.5	12.4	87.6	
Education				0.0008★
0–9 years	62.7	19.0	81.0	
10–13 years	27.4	11.8	88.2	
Attended university	9.9	10.2	89.8	
Marital status				0.0001★
Married	54.8	13.9	86.1	
Separated or divorced	9.6	15.19	84.81	
Widowed	29.4	22.8	77.2	
Single	6.2	13.4	86.6	
Individual income				0.0063★
0–$19,999	66.3	18.3	81.7	
$20–49,999	30.9	11.2	88.8	
$50,000+	2.9	19.6	80.4	
Social support				0.4725
Low	15.7	18.1	81.9	
High	84.3	16.1	83.9	
Perceived health status				0.0001★
Excellent	11.2	8.2	91.8	
Very good	24.3	7.1	92.9	
Good	41.6	17.6	82.4	
Fair	18.5	27.7	72.3	
Poor	4.4	31.5	68.5	
Depression				0.0001★
Yes	2.7	50.9	49.2	
No	97.3	15.7	84.4	
Nervousness				0.0001★
Yes	28.6	25.5	74.6	
No	71.4	13.1	86.9	
Psychological distress				0.0001★
Low	30.4	8.9	91.1	
Intermediate	63.7	16.7	83.3	
High	5.9	33.6	66.5	
Medical visits				0.0026★
Yes	23.7	21.6	78.4	
No	76.3	15.1	84.9	

★ significant at $\alpha \leq .05$

controlling for age, gender, and education. Subsequently, binary logistic regressions (all those who had used ASH; ASH use less than 6 months; ASH use 7–11 months; ASH use 12 months or more), incorporating all the statistically significant variables included in the bivariate analysis, were performed to assess the independent impact of each independent variable for each group.

Sample Characteristics

Demographic characteristics (Table 1). In our sample of elderly persons living in the community, respondents typically were women (58%), had 9 or fewer years of education (63%), were married (55%) or widowed (29%), and had an income of less than $20,000 (66%).

Social and health characteristics. Most respondents reported a high level of social support (84%) and a positive perception of their health (77%). Similarly, a minority reported mental health problems of depression (3%), nervousness (29%), or a high level of psychological distress (23%). Despite the overall favourable physical and emotional health picture, more than half of these seniors used at least three drugs (52%) and 17% were ASH users. A relatively high proportion (23%) had consulted a doctor in the previous 2 weeks.

Results

Factors in Use: Bivariate Analysis

Chi-square tests show that ASH use increases by *age* category and is more prevalent in women than men. Seniors with a lower level of *education* used more ASH, as did those who were widowed. There is an association between *income* and consumption of ASH. Middle-income persons used less ASH than low- or high-income persons. Social support was not found to be related to ASH use. Finally, all *health status variables* — emotional, psychological, and physical — suggested a strong association with prevalence of use.

Factors and Duration of Use: Logistic Regression

Table 2 presents only the variables that were significantly associated in the logistic regression with one of the four dependent variables. For having used ASH at all, the logistic regression provided a very different picture from the bivariate analysis, taking into account interdependencies of the independent variables. Logistic regression revealed no significant association between the fact of ASH use and the senior's age, level of education, marital status, or income. Use of ASH was nevertheless associated with fair or poor perceived health, nervousness, and depression.

Table 2 *Logistic Regression of Factors and Duration of ASH Use*

Categories of Reference	Independent Variables	ASH Use	ASH Use ≤ 6 Months	ASH Use 7–11 Months	ASH Use ≥ 12 Months
Male	Female	1.35[1] [0.98–1.86][2]	1.07 [0.48–2.39]	1.48* [1.03–2.12]	1.47* [1.02–2.13]
Positive perceived health	Fair or poor	1.89* [1.36–2.63]	1.34 [0.60–3.01]	1.98* [1.38–2.84]	1.88* [1.30–2.73]
No depression	Depression	3.12* [1.41–6.91]	5.71* [1.54–21.08]	3.23* [1.42–7.34]	2.96* [1.29–6.80]
Low level of psychological distress	Intermediate	1.48 [0.95–2.31]	1.74 [0.44–6.81]	1.63* [1.00–2.65]	1.59 [0.96–2.61]
	High	1.80 [0.88–3.66]	1.22 [0.19–7.80]	1.98 [0.90–4.32]	2.10 [0.96–4.64]
No nervousness	Nervousness	1.92* [1.36–2.71]	3.63* [1.54–8.55]	1.43 [0.98–2.09]	1.42 [0.96–2.09]
No medical visit	Medical visits	1.30 [0.94–1.81]	2.89* [1.38–6.04]	1.04 [0.72–1.50]	1.00 [0.68–1.46]

1. Odds ratio
2. 95% confidence limits
* Significant at ≤ .05

The picture further changed with multivariate analysis of *duration* of use. Whether factors were statistically significant for use largely depended on the duration of use. Gender and perceived health status variables were associated with ASH use only for 7 or more months. Psychological distress was not associated with short- or long-term use; for intermediate-term use (7–11 months) there was an association with intermediate, but not high, distress. Nervous problems and medical visits related only to short-term use. While depression remained significant at all duration levels, the odds ratio declined as use became long-term.

The factors associated with the use of ASH for 6 months or less were, in descending order by odds ratio, depression, nervousness, and medical visits. For use of ASH for 7 to 11 months, the associated factors were, in descending order, depression, fair or poor perceived health, intermediate level of psychological distress, and being female. For use of ASH for 12 months or more, the associated factors were, in descending order, depression, fair or poor perceived health, and being female.

Discussion

Our logistic regression revealed that depression was the only factor associated with short-term use that remains so for long-term use — although

its explanatory power declined as duration increased. ASH use is frequently found among depressed elderly persons in the community; indeed one study found that benzodiazepines are prescribed as frequently as antidepressants for such persons (Wilson, Copeland, Taylor, Donoghue, & McCracken, 1999), yet ASH are not indicated for depression (Grossberg & Grossberg, 1998; Kelman & Mayer-Oakes, 1994). In any event, even if being depressed significantly raises the odds of an elderly person using ASH, it can only explain use by a very small proportion of elderly ASH users, since only 3% reported suffering from depression (while 29% reported nervousness). If medically indicated treatment for psychological problems does not explain long-term use, what does explain it? We can probably provide only a partial answer here, since we included only variables that had been studied for psychotropic use in general; much more research and theoretical development may be required in order to identify appropriate candidates for explaining duration of use. What we did find is that elderly persons who perceive their health as poor or only fair and who are female are associated with long-term but not short-term use.

The observation that long-term use is linked to factors other than mental health suggests that sociocultural factors (Préville, Hébert, Boyer, & Bravo, 2001) as well as other health problems (Jones, 1992; Kung, Gibson, & Helme, 1999) might help to explain our finding of health perception and gender as factors, but may also further explain long-term use independent of those factors. Very little is known about those factors not tested in our study. However, we see three insightful tendencies in our data regarding duration of ASH use by elderly people in the community: (a) the longer ASH is used, the less important mental health factors become; (b) medical visits vanish as a predictor of ASH use beyond 6 months; and (c) gender and health perception seem to play a role in long-term but not short-term use.

Long-Term Use Not Explained by Mental Health or Medical Visits

Apart from depression, mental health factors, particularly nervousness, become less significant with prolonged ASH use. Depression is significantly associated with long-term use, but is a weaker explanatory factor in long-term than in short-term use. In other words, medical and mental health factors do not differentiate long-term from short-term use, nor do they explain long-term use; seniors using ASH for long periods do so for reasons other than those that explain initial use. One very likely factor in continuous use is dependency on ASH; it is well documented that long-term ASH use can lead to addiction (Rickels, Schweizer, Case, & Greenblatt, 1990; Stewart, 1994; Taylor et al., 1998). Furthermore, elderly persons are at increased risk for dependence (Petrovic, Vandierendonck,

Mariman, & Maele, 2002). All of our findings separately, and especially together, support the proposition that as use becomes long-term it is associated more with dependence and factors predisposed to dependence than with the emotional-psychological problems for which the psychotropics were originally prescribed.

However, the implications of this knowledge for clinical practice have rarely been addressed. While expert panels (Grossberg & Grossberg, 1998; McLeod et al., 1997) agree that use of ASH for longer than 30 days is not recommended, several epidemiological studies report that seniors who use ASH usually do so for more than 1 year (Berg & Dellasega, 1996; Dealberto et al., 1997; Statistics Canada, 1994). In fact, duration of use increases with age (Ohayon, Caulet, Priest, & Guilleminault, 1998; Pérodeau, Jomphe-Hill, Hay-Paquin, & Amyot, 1996; Voyer, 2001), which makes the issue of ASH dependency particularly worrisome for elderly persons.

What can nurses do about this in their community practice with elderly persons? ASH withdrawal programs are not widely implemented in community centres or day hospitals. Nevertheless, there is now consensus in the scientific literature on the importance of implementing such programs (Finlayson, 1995; Grymonpre, Badger, Tabisz, Jacyk, & Powell, 1996; Miller & Mahler, 1991; Voyer & Martin, 2003), and a Cochrane meta-analysis found withdrawal programs to be one of five types of interventions likely to be beneficial in preventing falls among the elderly (Gillespie et al., 2001). It has been argued that nurses should take a leadership role in putting these programs in place in such settings. Nursing research has already demonstrated the ability of nurses to take on this role (Haack, 1998; Tabloski, Cooke, & Thoman, 1998; Voyer, Richard, & Dupont, 2001).

Lockwood and Berbatis (1990) found a relationship between ASH use and medical visits. While we also found this for short-term use, in our study the relationship between medical visits and use disappeared over the long term. This suggests that medical practice has yet to find ways to withdraw patients from these drugs. Studies suggest that when their ASH prescriptions run out, seniors influence their physicians to renew them (Ankri, Collin, Pérodeau, & Beaufils, 2002; Collin, Damestoy, & Lalande, 1999; Sleath, Svarstad, & Roter, 1997). It is possible that seniors are promoting such prescription renewals because they hold positive perceptions about the drugs. It has been demonstrated that the longer the duration of ASH use, the more positive the senior's perception of the drug (Chambers & White, 1980; Clinthorne, Cisin, Balter, Mellinger, & Uhlenhuth, 1986), and, similarly, that seniors tend to minimize the potential harmful effects of these drugs (Chambers & White, 1980; Helman, 1981).

On the other hand, a large study by Straand and Rockstad (1997) demonstrated that 87% of psychotropic drugs used by seniors resulted from a prescription renewal, and that the continued need for these drugs was rarely assessed by their physicians. Indeed, studies have found that 60% to 70% of the renewals of these drugs are ordered outside of medical visits (Straand & Rockstad;Van der Waals, Mohrs, & Foets, 1993). The renewals are often ordered, without any evaluation, via a phone call to the physician. This has led some researchers to assert that once a senior begins using ASH, it is extremely unlikely that he or she will quit (Isacson, 1997; Stewart, 1994). In other words, the greatest determinant of long-term use is initial prescription. However, as clinicians, and as researchers working with clinicians, we have observed that often physicians would like to withdraw their patients from these drugs, but to be effective they need to work in collaboration with other health-care providers such as nurses and pharmacists. From our point of view, nurses are very well positioned in public home-care programs, community health centres, and day hospitals to collaborate with physicians in implementing withdrawal programs for the benefit of seniors.

Gender as a Contributing Factor in Long-Term ASH Use

According to the logistic regression, gender does not begin to play a role until long-term use (7 months and more), which also remains very difficult to explain. The literature offers many hypotheses regarding what leads more women than men to use these drugs. However, these hypotheses do not take duration of use into account. They focus mainly on the role of the elderly woman and on the responsibility of the physician. Researchers have suggested that women are more inclined to reveal their emotional problems to their physician (Cafferata, Kasper, & Bernstein, 1983), are more liable than men to self-treat "feminized nerves" with psychotropics (whereas men more frequently self-treat "masculinized stress" with alcohol) (Ettore & Riska, 2001), or tend to more explicitly ask their doctor to prescribe a psychotropic (Hohmann, 1989). Our results do not support these hypotheses, since one would think they would apply to short-term as well as long-term use and we found gender to be associated only with the latter.

Given the finding that physician characteristics and practice styles influence relative frequencies of prescribing for men and women (Tamblyn, Laprise, Schnarch, Monette, & McLeod, 1996), an alternative hypothesis might be that doctors are more inclined to prescribe a psychotropic for a woman than for a man (Hohmann, 1989; Mamdani, Herrmann, & Austin, 1999). For example, it has been argued that physicians tend to "medicalize" the social and psychological problems of women more than those of men (Pihl, Marinier, Lapp, & Drake, 1982).

It has frequently been observed that women's life problems — and "nerves" — are more likely to result in an ASH prescription than men's conditions, whereas men are more likely to self-medicate with alcohol (Cooperstock, 1971; Ettore & Riska, 2001; Hohmann). However, one would expect these tendencies to result in an association of gender with short-term as well as long-term use, yet they do not.

Some researchers suggest that since women live longer than men they are more vulnerable to the effects of aging, have more health problems, and are more exposed to the loss of persons close to them — including their social and economic roles. All of these factors can increase the probability of psychotropic drug use (Cooperstock & Parnell, 1982; Jorm et al., 2000). Yet, although such factors are associated with advanced age, entering age into the regression did not capture this effect. The gender effect in our data, which remains while also incorporating health problems, must be explained largely by some other factor. While many studies over the past 2 decades have found women more likely than men to be ASH users (even much more likely in the earlier studies), there may have been a tendency over the years for the gender gap to narrow due to changes in social representations and expectations regarding gender roles. Increasingly, physicians entering practice and elderly women seeking medical advice have been part of this new cultural era. As previous cohorts diminish, then, we might expect to see the gender effect disappear. One might postulate that the cohort effect helps to explain the long- but not short-term use, given that, according to the bivariate analysis, ASH use increases with age among the elderly and is higher among women than men, and as the age group increases so does the proportion of women in that group. However, this hypothesized cohort effect would require a sizeable proportion of users to have been using ASH for extremely long periods, even decades; our study does not indicate this. Furthermore, one would expect this explanation to suggest an impact for age in the logistic regression, yet it does not.

None of the above explanations seem to distinguish the role of gender in long-term but not short-term use. We are left, then, with one hypothesis that we cannot at this point dismiss: that women are more likely than men to become dependent on ASH. While there may well be some sociocultural reasons for this, translating into personality characteristics predisposing to dependence upon this class of drugs (see Marinier, Pihl, Wilford, & Lapp, 1985), researchers also need to consider physiological reasons. One such reason could be that if women and men are taking doses of similar strength, women may become addicted to ASH more quickly because of their relatively lower body weight. This bears investigation.

Health Perception as Dependent or Independent Factor in Long-Term ASH Use

The direction(s) of causality for health perception is not clear. Further investigation, including qualitative research (e.g., Collin, 2001), is needed to explore the relations between health perception and elderly use of ASH. Iatrogenic effects of long-term use may impact on health and hence health perception, as found by Arinen et al. (1998). It has been demonstrated that after controlling for competing factors, benzodiazepine use decreases the functional capacity of older people (Ried, Johnson, & Gettman, 1998). Since nurses are particularly concerned with physical autonomy and independence, the prolonged use of these drugs by elderly people warrants nursing attention. In the other causal direction, relatively poor health (and the perception of such) may affect the person's cost-benefit calculation, in that withdrawal effects may be considered too difficult to bear ("now is not the time to stop taking them") on top of not feeling well, and/or the pleasurable feelings the drugs provide may make the perception of poor health more bearable.

In one respect this issue is different for elderly persons: for such persons a chronic illness may be seen as a sign of limited life expectancy. As discussed earlier, the perception of lower life expectancy can make the long-term benefits of withdrawing not seem worth the short-term costs of withdrawing. Note that the positive association of age with ASH use found in the bivariate analysis fell out of the logistic regression; it would appear that health perception, which may become less positive with age, is the factor explaining the role of age in the bivariate analysis.

More generally, there is a strongly anchored belief in Western culture that the way to deal with health problems is through pills — perhaps through any pill (Cohen, McCubbin, Collin, & Pérodeau, 2001). The primary conclusion of a small (n = 28) study with elderly benzodiazapine users in France was that the pills were taken mainly for "chemical relief of a moral discomfort" (Fernandez & Cassagne-Pinel, 2001, p. 19 [translated]; see also Zarifian, 1998) ensuing from physical health problems and negative life events. Nurses should supplement their knowledge about appropriate use, iatrogenic effects, particularly in terms of differential impacts on the elderly, and issues of dependence and withdrawal with an in-depth understanding of seniors' needs, motives, and expectations when taking ASH for prolonged periods. They will then be well placed to conduct health education among elderly people around issues such as appropriate therapeutic use, polypharmacy, dependency, and toxicity. Such health education should be carried out in a manner that empowers seniors to act responsibly and to adopt positive health behaviours (Voyer, 1999).

Limits of the Study

There are limits to this study that should be acknowledged. First, its cross-sectional nature does not allow us to determine the precedence of the independent variables on psychotropic drug use (except in the case of gender). Second, the study relies on self-report data, which could have been influenced by social desirability or denial. For instance, it is likely that some seniors hid their depression or exaggerated their levels of social support. Also, it is possible that we have underestimated the true prevalence of ASH use; elderly persons in the community tend to underreport their drug use (Spagnoli et al., 1989). Finally, duration of use is vulnerable to forgetfulness; this could have influenced our results.

Conclusion

As noted at the beginning of this paper, there are ample indications of long-term ASH use by elderly persons for reasons not fully explained by medical necessity. This should be of concern to nurses working with elderly people in the community, given the documented negative effects of long-term ASH use. Effective intervention to reduce unnecessary long-term ASH use requires an understanding of not only dependence itself, but also the determinants of dependence among elderly people. While the factors associated with ASH use by elderly persons in the community have been extensively researched, no single factor has been unambiguously supported by the study investigating it; all that remained clear in each study was that psychological problems explain only a part of use. However, there has been no previous study of the factors associated with duration of use among seniors living in the community.

We posited that one explanation for the conflicting results of studies is the confounding effect of duration of use. Our results support this hypothesis. But while our findings support the idea that mental health problems lead seniors to *initially* use ASH, the role of such problems in long-term use is less evident. We proposed that dependency is a likely factor in long-term use. Our results are therefore consistent with the conclusions of the Addiction Science Network (2003):

> Many factors influence a person's initial drug use (personality characteristics, psychological stress…)… [However,] these factors are less important as drug use continues and the person repeatedly experiences the potent pharmacological effects of the drug. This chemical action, which stimulates certain brain systems, produces the addiction, while other psychological and social factors become less and less important in influencing the individual's behavior.

While further research and theory development are required to more fully explain the roles of gender, health perception, and other determinants, including dependence, in prolonged ASH use, the results of both previous research and the present study provide evidence to guide nurses in implementing ASH withdrawal strategies for seniors.

References

Addiction Science Network (2003, March). A primer on drug addiction. Available on the World Wide Web: www.addictionscience.net

Allard, J., Allaire, D., Leclerc, G., & Langlois, S.-P. (1995). The influence of family and social relationships on the consumption of psychotropic drugs by the elderly. *Archives of Gerontology and Geriatrics, 20,* 193–204.

Allen, R. M. (1986). Tranquilizers and sedative/hypnotics: Appropriate use in the elderly. *Geriatrics, 47*(5), 57–88.

Ankri, J., Collin, J., Pérodeau, G., & Beaufils, B. (2002). Médicaments psychotropes et sujets âgés : Une problématique commune France-Québec? (synthèse de la littérature). *Sciences sociales et santé, 20*(1), 34–62.

Antonijoan, R. M., Barbanoj, M. J., Torrent, J., & Jane, F. (1990). Evaluation of psychotropic drug consumption related to psychological distress in the elderly: Hospitalized vs. nonhospitalized. *Neuropsychobiology, 23,* 25–30.

Arinen, S., Häkkinen, U., Klaukka, T., Klavus, J., Lehtonen, R., & Aro, S. (1998). *Health and the use of health services in Finland: Main findings of the Finnish Health Care Survey 1995/96 and changes from 1987*. Helsinki: SVT Health.

Audet, N., Lemieux, M., & Cardin, J. F. (2001). *Enquête sociale et de santé 1998. Cahier technique et méthodologique : Définition et composition des indices*, Vol. 2. Montreal: Institut de la statistique du Québec.

Berg, S., & Dellasega, C. (1996). The use of psychoactive medications and cognitive function in older adults. *Journal of Aging and Health, 8*(1), 136–149.

Besley, D., Kuh, E., & Welsch, R. (1980). *Regression diagnostics: Identifying influential data and sources of collinearity*. New York: John Wiley.

Blazer, D., Hybels, C., Simonsick, E. M., & Hanlon, J. T. (2000a). Marked differences in antidepressant use by race in an elderly community sample: 1986–1996. *American Journal of Psychiatry, 157,* 1089–1094.

Blazer, D., Hybels, C., Simonsick, E. M., & Hanlon, J. T. (2000b). Sedative, hypnotic, and antianxiety medication use in an aging cohort over ten years: A racial comparison. *Journal of the American Geriatrics Society, 48,* 1073–1079.

Borg, S., & Larsson, S. (2001). Epilogue: Drawing together the threads and perspectives on the long-term use of psychotropics. *Substance Use and Misuse, 36,* 1357–1367.

Caces, M. F., Harford, T. C., & Aitken, S. S. (1998). Prescription and non-prescription drug use: A longitudinal study. *Journal of Substance Abuse, 10*(2), 115–126.

Cafferata, G. L., Kasper, J., & Bernstein, A. (1983). Family roles, structure, and stressors in relation to sex differences in obtaining psychotropic drugs. *Journal of Health and Social Behavior, 24,* 132–143.

Chambers, C. D., & White, O. Z. (1980). Characteristics of high-frequency consumers of prescription psychoactive drugs. *Chemical Dependencies: Behavioral and Biomedical Issues*, *4*(1), 33–46.

Chen, Y.-F., Dewey, M. E., Avery, A. J., & the Analysis Group of the MRCCFA Study. (2001). Self-reported medication use for older people in England and Wales. *Journal of Clinical Pharmacy and Therapeutics, 26,* 129–140.

Clinthorne, J. K., Cisin, I. H., Balter, M. B., Mellinger, G. D., & Uhlenhuth, E. H. (1986). Changes in popular attitudes and beliefs about tranquillizers. *Archives of General Psychiatry*, *43,* 527–532.

Cohen, D., & Collin, J. (1997). *Les toxicomanies en lien avec les médicaments psychotropes chez les personnes âgées, les femmes et les enfants : Recension et analyse des écrits*. Quebec: Ministère de la Santé et des Services sociaux, Groupe de travail sur la prévention des toxicomanies.

Cohen, D., McCubbin, M., Collin, J., & Pérodeau, G. (2001). Medications as social phenomena. *Health: An Interdisciplinary Journal for the Study of Health, Illness, and Medicine, 5,* 441–469.

Collin, J. (2001). Médicaments psychotropes et personnes âgées : Une socialisation de la consommation. *Revue québécoise de psychologie, 22*(2), 75–98.

Collin, J., Damestoy, N., & Lalande, R. (1999). La construction d'une rationnalité : Les médecins face à la prescription de psychotropes aux personnes âgées. *Sciences sociale et santé, 17*(2), 31–50.

Colvez, A., Carrière, I., Castex, A., & Favier, F. (2002). Recherche d'une typologie des consommations médicamenteuses des personnes âgées vivant à domicile. In search of a typology of drugs used by the aged living in the community. *Revue d'épidemiologie et santé publique, 50,* 121–133.

Cooperstock, R. (1971). Sex differences in the use of mood modifying drugs: An explanatory model. *Journal of Health and Social Behavior, 12,* 228–244.

Cooperstock, R., & Parnell, P. (1982). Research on psychotropic drug use: A review of findings and methods. *Social Science and Medicine, 16,* 1179–1196.

Damestoy, N., Collin, J., & Lalande, R. (1999). Prescribing psychotropic medication for elderly patients: Some physicians' perspectives. *Canadian Medical Association Journal, 161*(2), 143–145.

Daveluy, C., Pica, L., Audet, R., Courtemanche, R., Lapointe, F., Côté, L., & Baume, J. (2001). *Enquête sociale et de santé 1998. Cahier technique et méthodologique : Documentation générale,* Vol. 1. Montreal: Institut de la statistique du Québec.

Dealberto, M. J., McAvay, G. J., Seeman, T., & Berkman, L.. (1997). Psychotropic drug use and cognitive decline among older men and women. *International Journal of Geriatric Psychiatry, 12,* 567–574.

Dealberto, M. J., Seeman, T., McAvay, G. J., & Berkman, L. (1997). Factors related to current and subsequent psychotropic drug use in an elderly cohort. *Journal of Clinical Epidemiology, 50,* 357–364.

Ebly, E. M., Hogan, D. B., & Fung, T. S. (1997). Potential adverse outcomes of psychotropic and narcotic drug use in Canadian seniors. *Journal of Clinical Epidemiology, 50,* 857–863.

Ettore, E., Klaukka, T., & Riska, E. (1994). Psychotropic drugs: Long-term use, dependency and gender factor. *Social Science and Medicine, 39,* 1667–1673.

Ettore, E., & Riska, E. (2001). Long-term users of psychotropic drugs: Embodying masculinized stress and feminized nerves. *Substance Use and Misuse, 36,* 1187–1211.

Fernandez, L., & Cassagne-Pinel, C. (2001). Addiction aux benzodiazepines et symptomatologie anxieuse et dépressive chez les sujets âgés. *Encephale, 27,* 459–474.

Finlayson, F. E. (1995). Misuse of prescription drugs. *International Journal of the Addictions, 30,* 1871–1901.

Fourrier, A., Letenneur, L., Dartigues, J. F., Moore, N., & Bégaud, B. (2001). Benzodiazepine use in an elderly community-dwelling population: Characteristics of users and factors associated with subsequent use. *European Journal of Clinical Pharmacology, 57,* 419–425.

Gillespie, L. D., Gillespie, W. J., Robertson, M. C., Lamb, S. E., Cumming, R. G., & Rowe, B. H. (2001). *Interventions for preventing falls in the elderly*. Oxford: Cochrane Library.

Glazer, G. B., & Zawadski, R. T. (1981). Use of psychotropic drugs among the aged revisited. *Journal of Psychoactive Drugs, 13,* 195–198.

Gleason, P. P., Schultz, R., Smith, N. L., Newsom, J. T., Kroboth, F. J., & Psaty, B. M. (1998). Correlates and prevalence of benzodiazepine use in community-dwelling elders. *Journal of General Internal Medicine, 13,* 243–250.

Golstein, M. S., Siegel, J. M., & Boyer, R. (1984). Predicting changes in perceived health status. *American Journal of Public Health, 76*(6), 611–613.

Gray, S. L., LaCroix, A. Z., Blough, D., Wagner, E. H., Koepsell, T. D., & Buchner, D. (2002). Is the use of benzodiazepines associated with incident disability? *Journal of the American Geriatrics Society, 50,* 1012–1018.

Grossberg, G. T., & Grossberg, J. A. (1998). Epidemiology of psychotherapeutic drug use in older adults. *Clinics in Geriatric Medicine, 14*(1), 1–5.

Grymonpre, R. E., Badger, M., Tabisz, E., Jacyk, W. R., & Powell, C. (1996). The development of a prescription drug dependence screen for older adults. *Canadian Journal of Hospital Pharmacy, 49*(1), 7–12.

Gustafsson, T. M., Isacson, D. G. L., Thorslund, M., & Sörbom, D. (1996). Factors associated with psychotropic drug use among the elderly living at home. *Journal of Applied Gerontology, 15,* 238–254.

Haack, M. R. (1998). Treating acute withdrawal from alcohol and other drugs. *Nursing Clinics of North America, 33*(1), 75–92.

Helman, C. G. (1981). Tonic, fuel and food: Social and symbolic aspects of long-term use of psychotropic drugs. *Social Science and Medicine, 15B,* 521–533.

Hohmann, A. A. (1989). Gender bias in prescribing in primary care. *Medical Care, 27,* 478–490.

Ilfeld, F. W. (1976). Further validation of a psychiatric symptom index in a normal population. *Psychological Reports, 39,* 1215–1228.

Ilfeld, F. W. (1978). Psychological status of community residents along major demographic dimensions. *Archives of General Psychiatry, 35,* 716–724.

Isacson, D. (1997). Long-term benzodiazepine use: Factors of importance and the development of individual use patterns over time: A 13-year follow-up in a Swedish community. *Social Science and Medicine, 44,* 1871–1880.

Jenkins, B. L. (1976). A case against "sleepers." *Journal of Gerontological Nursing, 2*(2), 10–13.

Jones, D. (1992). Characteristics of elderly people taking psychotropic medication. *Drugs and Aging, 2,* 389–394.

Jorm, A. F., Grayson, D., Creasey, H., Waite, L., & Broe, G. A. (2000). Long-term benzodiazepine use by elderly people living in the community. *Australian and New Zealand Journal of Public Health, 24,* 7–10.

Kelman, G., & Mayer-Oakes, S. A. (1994). Relationships between depression and the use of antidepressants and benzodiazepines in older community-dwelling Southern Californians. *Clinical Gerontologist, 14*(4), 71–72.

Kirby, M., Denihan, A., Bruce, I., Radic, A., Coakley, D., & Lawlor, B. A. (1999). Benzodiazepine use among the elderly in the community. *International Journal of Geriatric Psychiatry, 14,* 280–284.

Koenig, W., Rüther, E., & Filipiak, B. (1987). Psychotropic drug utilization patterns in a metropolitan population. *European Journal of Clinical Pharmacology, 32,* 43–51.

Kung, F., Gibson, S. J., & Helme, R. D. (1999). Factors associated with analgesic and psychotropic medication use by community-dwelling older people with chronic pain. *Australian and New Zealand Journal of Public Health, 23,* 471–474.

Lagnaoui, R., Bégaud, B., Moore, N., Chaslerie, A., Fourrier, A., Letenneur, L., et al. (2002). Benzodiazepine use and risk of dementia: A nested case-control study. *Journal of Clinical Epidemiology, 55,* 314–318.

Larose, D. (1996). Les habitudes de consommation de psychotropes chez les personnes âgées. *Santé mentale au Québec, 21,* 291–296.

Linden, M., Lecrubier, Y., Bellantuono, C., Benkert, O., Kisely, S., & Simon, G. (1999). The prescribing of psychotropic drugs by primary care physicians: An international collaborative study. *Journal of Clinical Psychopharmacology, 19,* 132–139.

Linjakumpu, T., Hartikainen, S., Klaukka, T., Koponen, H., Kivelä, S.-L., & Isoaho, R. (2002). Psychotropics among the home-dwelling elderly: Increasing trends. *International Journal of Geriatric Psychiatry, 17,* 874–883.

Lockwood, A., & Berbatis, C. G. (1990). Psychotropic drugs in Australia: Consumption patterns. *Medical Journal of Australia, 153,* 604–611.

Lyndon, R. W., & Russell, J. D. (1990). Can overuse of psychotropic drugs by the elderly be prevented? *Australian and New Zealand Journal of Psychiatry, 24,* 77–81.

Mamdani, M., Herrmann, N., & Austin, P. (1999). Prevalence of antidepressant use among older people: Population-based observations. *Journal of the American Geriatrics Society*, *47,* 1350–1353.

Marinier, R. L., Pihl, R. O., Wilford, C., & Lapp, J. E. (1985). Psychotropic drug use by women: Demographic, lifestyle, and personality correlates. *Drug Intelligence and Clinical Pharmacy, 19,* 40–45.

Mayer-Oakes, S. A., Kelman, G., Beers, M. K., De Jong, F., Matthias, R., Atchison, A., Lubben, J. E., & Schweitzer, S. O. (1993). Benzodiazepine use in older, community-dwelling Southern Californians: Prevalence and clinical correlates. *Annals of Pharmacotherapy, 27,* 416–421.

McLeod, P. J., Hung, A. R., Tamblyn, A. R., & Gayton, D. C. (1997). Defining inappropriate practice in prescribing for elderly people: A national consensus panel. *Canadian Medical Association Journal, 156,* 385–391.

Miller, N. S., & Mahler, J. C. (1991). Addiction to and dependence on benzodiazepines. Diagnostic confusion in clinical practice and research studies. *Journal of Substance Abuse Treatment, 8,* 61–67.

Mort, J. R., & Aparasu, R. R. (2002). Prescribing of psychotropics in the elderly: Why is it so often inappropriate? *CNS Drugs, 16,* 99–109.

Mossey, J. M., & Shapiro, E. (1982). Self-rated health: A predictor of mortality among the elderly. *American Journal of Public Health, 72,* 800–808.

Newman, S. C., & Hassan, A. I. (1999). Antidepressant use in the elderly population in Canada: Results from a national survey. *Journal of Gerontology: Medical Sciences, 54A,* M527–M530.

Ohayon, M., Caulet, M., & Lemoine, P. (1996). Aging, sleep habits and psychotropic drug consumption in a general French population. *Encephale, 22,* 337–350.

Ohayon, M. M., Caulet, M., Priest, R. G., & Guilleminault, C. (1998). Psychotropic medication consumption patterns in the UK general population. *Journal of Clinical Epidemiology, 51,* 273–283.

Paterniti, S., Dufouil, C., & Alpérovitch, A. (2002). Long-term benzodiazepine use and cognitive decline in the elderly: The Epidemiology of Vascular Aging Study. *Journal of Clinical Psychopharmacology, 22,* 285–293.

Pérodeau, G., & Galbaud du Fort, G. (2000). Psychotropic drug use and the relation between social support, life events, and mental health in the elderly. *Journal of Applied Gerontology, 19,* 23–41.

Pérodeau, G., Jomphe-Hill, A., Hay-Paquin, L., & Amyot, E. (1996). Les psychotropes et le vieillissement normal : Une perspective psychosociale et socioéconomique. *Revue canadienne du vieillissement, 15,* 559–582.

Pérodeau, G., King, S., & Ostoj, M. (1992). Stress and psychotropic drug use among the elderly: An exploratory model. *Canadian Journal of Aging, 11,* 347–369.

Petrovic, M., Vandierendonck, A., Mariman, A., & Maele, G.V. (2002). Personality traits and socio-epidemiological status of hospitalized elderly benzodiazepine users. *International Journal of Gerontological Psychiatry, 17,* 733–738.

Pihl, R. O., Marinier, R., Lapp, J., & Drake, H. (1982). Psychotropic drug use by women: Characteristics of high consumers. *International Journal of the Addictions, 17,* 259–269.

Préville, M., Boyer, R., Potvin, L., Perreault, C., & Légaré, G. (1992*). La démoralisation : Détermination de la validité et de la fiabilité de la mesure utilisée dans l'Enquête santé Québec. Cahier de recherche no. 7.* Montreal: Enquête Santé Québec.

Préville, M., Hébert, R., Boyer, R., & Bravo, G. (2001). Correlates of psychotropic drug use in the elderly compared to adults aged 18–64: Results from the Quebec Health Survey. *Aging and Mental Health*, *5*(3), 216–224.

Préville, M., Potvin, L., & Boyer, R. (1995). The structure of psychological distress in a population sample. *Psychological Report, 77,* 275–293.

Ray, W. A. (1992). Psychotropic drugs and injuries among the elderly: A review. *Journal of Clinical Psychopharmacology, 12,* 386–396.

Rickels, K., Schweizer, E., Case, G., & Greenblatt, D. J. (1990). Long-term therapeutic use of benzodiazepines. 1: Effects of abrupt discontinuation. *Archives of General Psychiatry, 47,* 899–907.

Ried, L. D., Johnson, R. E., & Gettman, D. A. (1998). Benzodiazepine exposure and functional status in older people. *Journal of the American Geriatrics Society, 46,* 71–77.

Sleath, B., Svarstad, B., & Roter, D. (1997). Physician vs. patient initiation of psychotropic prescribing in primary care setting: A content analysis of audiotapes. *Social Science and Medicine, 44,* 541–548.

Spagnoli, A., Ostino, G., Borga, A. D., D'Ambrosio, R., Magiorotti, P., Todisco, E., et al. (1989). Drug compliance and unreported drugs in the elderly. *Journal of the American Geriatrics Society, 37,* 92–98.

Statistics Canada. 1994. *Canada's Alcohol and Other Drugs Survey*. Ottawa: Health Canada.

Stewart, R. B. (1994). Benzodiazepine use in an ambulatory elderly population: A 14-year overview. *Clinical Therapeutics, 16,* 118–124.

Straand, J., & Rockstad, K. (1997). General practitioners' prescribing patterns of benzodizepine hypnotics: Are elderly patients at particular risk for overprescribing? *Scandinavian Journal of Primary Health Care*, *15,* 16–21.

Tabloski, P. A., Cooke, K. M., & Thoman, E. B. (1998). A procedure for withdrawal of sleep medication in elderly women who have been long-term users. *Journal of Gerontological Nursing, 24*(9), 20–28.

Talerico, K. A. (2002). A critique of research measures used to assess inappropriate psychoactive drug use in older adults. *Journal of the American Geriatrics Society, 50,* 374–377.

Tamblyn, R. M., Laprise, R., Schnarch, B., Monette, J., & McLeod, P. J. (1996). Caractéristiques des médecins prescrivant des psychotropes davantage aux femmes qu'aux hommes. *Santé mentale au Québec, 22,* 239–262.

Tamblyn, R. M., McLeod, P. J., Abrahamowicz, M., Monette, J., Gayton, D. C., Berkson, L., et al. (1994). Questionable prescribing for elderly patients in Quebec. *Canadian Medical Association Journal, 150,* 1801–1809.

Taylor, S., McCracken, C. F. M., Wilson, K. C. M., & Copeland, J. R. M. (1998). Extent and appropriateness of benzodiazepine use. *British Journal of Psychiatry, 173,* 433–438.

Thomson, M., & Smith, W. A. (1995). Prescribing benzodiazepines for noninstitutionalized elderly. *Canadian Family Physician, 41,* 792–798.

Tromp, A. M., Pluijm, S. M., Smit, J. H., Deeg, D. J., Bouter, L. M., & Lips, P. (2001). Fall-risk screening test: A prospective study on predictors for falls in community-dwelling elderly. *Journal of Clinical Epidemiology, 54,* 837–844.

Van der Waals, F. J., Mohrs, J., & Foets, M. (1993). Sex differences among recipients of benzodiazepines in Dutch general practice. *British Medical Journal, 307,* 363–366.

Voyer, P. (1999). Les pilules sont ma responsabilité. *L'Infirmière Canadienne, 95*(7), 37–42.

Voyer, P. (2001). *L'association entre la santé mentale et la consommation de psychotropes chez des aînés vivant dans la communauté.* Doctoral dissertation, Faculté des études supérieures, Université de Montréal.

Voyer, P., Lauzon, S., Collin, J., & McCubbin, M. (2003). *The consumption of psychotropic drugs by the elderly: A review of empirical studies*. Unpublished manuscript.

Voyer, P., & Martin, L. S. (2003). Improving geriatric mental health nursing care: Making a case for going beyond psychotropic medications. *International Journal of Mental Health Nursing, 12*(1), 11–21.

Voyer, P., Richard, L., & Dupont, L. (2001). Changer une habitude pour gagner en latitude. *L'Infirmière Canadienne*, *2*(8), 11–15.

Wancata, J., Benda, N., Meise, U., & Müller, C. (1997). Psychotropic drug intake in residents newly admitted to nursing homes. *Psychopharmacology, 134,* 115–120.

Ware, J. E., (1986). The assessment of health status. In L. H. Aiken & D. Mechanic (Eds.), *Applications of social science to clinical medicine and health policy* (pp. 204–228). New Brunswick, NJ: Rutgers University Press.

Wilson, K. C. M., Copeland, J. R. M., Taylor, S., Donoghue, J., & McCracken, C. F. M. (1999). Natural history of pharmacotherapy of older depressed community residents: The MRC-ALPHA Study. *British Journal of Psychiatry, 175,* 439–443.

Zarifian, E. (1998). La prescription des médicaments psychotropes : Usage, mésusage et abus. The prescription of psychotropic drugs: Use, misuse and abuse. *Bulletin de l'Academie Nationale de Médecine, 182,* 1439–1447.

Acknowledgements

The authors wish to thank the Institut de la statistique du Québec for allowing analysis of the Quebec Health Survey Data, as well as Louis Rochette for conducting the statistical analysis.

Comments or inquiries may be directed to Philippe Voyer, Faculté des sciences infirmières, Université Laval, Cité Universitaire, Québec, Québec G1K 7P4 Canada. Telephone: 418-656-2131, ext. 8799. Fax: 418-656-7825. E-mail: philippe.voyer@fsi.ulaval.ca

---

Philippe Voyer, RN, PhD, is Assistant Professor, Faculty of Nursing Sciences, Université Laval, Quebec City, Quebec, Canada; and Researcher, Geriatric Research Unit, and Geriatric Nurse Specialist, St-Sacrement Hospital Centre, Quebec City. Michael McCubbin, PhD, is Adjunct Professor, Faculty of Nursing Sciences, Université Laval, and Researcher, Research Group on Social Integration and Organization and Evaluation of Services in Mental Health (GRIOSE-SM), CLSC Haute-Ville-Des-Prairies, Quebec City. Michel Préville, PhD, is Associate Professor, Department of Community Health Sciences, and Coordinator of the "populations and services" research axis, Research Centre, Institute for Geriatry, Université de Sherbrooke, Quebec. Richard Boyer, PhD, is Researcher, Centre de recherche Fernand-Séguin, Hôpital Louis-H. Lafontaine, and Associate Research Professor, Department of Psychiatry, Université de Montréal, Montreal, Quebec.