The healthy aged

Descriptive analysis by sex of cognitively functioning elderly patients 80 years and older living independently in the community

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Abstract

Objective To describe a population of cognitively functioning seniors aged 80 years and older who are living independently in the community.

Design Descriptive cross-sectional study based on the enrolment cohort of a randomized controlled trial.

Setting St John's, Nfld.

Participants A total of 236 cognitively functioning seniors aged 80 years and older living independently in the community.

Main outcome measures Demographic characteristics including age, sex, marital status, and education; health status and quality of life measured by the Short Form–36 and the CASP-19 (control, autonomy, self-realization, and pleasure); use of formal and informal community services; satisfaction with family physician care as measured by the Patient Satisfaction Questionnaire–18; and use of health care resources (family physician visits, emergency department visits, hospitalizations, and laboratory and diagnostic imaging tests).

Results Overall, 66.5% of those in the group were women and the average age was 85.5 years. A quarter had postsecondary diplomas or degrees; 54.7% were widowed (69.4% of women and 25.3% of men). The cohort scored well in terms of health status and quality of life, with a range of scores on the Short Form–36 from 57.5 to 93.5 out of 100, and a score of 44 out of 57 on the CASP-19; they were satisfied with the care received from family physicians, with scores between 3.8 and 4.3 out of 5 on the Patient Satisfaction Questionnaire–18; and use of health services was low—70% had no emergency department visits in the previous year and 80% had not used any laboratory or diagnostic services.

Conclusion Seniors aged 80 years and older living independently are involved in the social fabric of society. They are generally well educated, slightly more than half are widowed, and two-thirds are female. They score well on scales that measure well-being and quality of life, and they use few health services. They are the healthy aged.

Trial registration number NCT00452465 (ClinicalTrials.gov).

EDITOR'S KEY POINTS

- Seniors aged 80 years and older have increased in both number and proportion of the Canadian population. Despite stereotypes that depict the old elderly as a frail group, the physical health, cognitive skills, living situations, and activity levels of this cohort are quite varied.

- Most studies of the old elderly occur in the context of examining specific diseases. This study is a descriptive analysis of demographic characteristics, health status, use of community resources and health services, and satisfaction with care in a cohort of cognitively functioning, community-dwelling elderly aged 80 years and older, who were recruited into a randomized controlled trial investigating a nurse-based program of care rather than any specific medical condition.

- The cohort of old elderly in this study live in the community, function independently, are cognitively alert, and are involved in the social fabric of society and their families. They are generally well educated, slightly more than half are widowed, and two-thirds are women. They score well on scales that measure well-being and quality of life, and they use few health services.

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Les personnes âgées en santé

Analyse descriptive selon le sexe de patients âgés d'au moins 80 ans qui vivent dans le milieu naturel et qui demeurent fonctionnels sur le plan cognitif

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Résumé

Objectif Décrire une population de personnes de 80 ans et plus vivant dans leur milieu naturel et qui sont fonctionnelles sur le plan cognitif.

Type d'étude Étude descriptive transversale d'une cohorte participant à une étude randomisée.

Contexte St John's, Terre-Neuve.

Participants Un total de 236 personnes fonctionnelles sur le plan cognitif, âgées d'au moins 80 ans, et vivant de façon autonome dans la communauté.

Principaux paramètres à l'étude Caractéristiques démographiques : âge, sexe, état marital et niveau d'instruction; état de santé et qualité de vie, tels que mesurés par le *Short Form-36* et le *CASP-19* (contrôle, autonomie, réalisation personnelle et plaisir); utilisation des services communautaires formels et informels; satisfaction à l'égard des soins d'un médecin de famille, telle que mesurée par le *Patient Satisfaction Questionnaire-18*; et utilisation des services de santé (visites de médecins de famille : visites à l'urgence, hospitalisations et recours à des examens de laboratoire et à des examens d'imagerie diagnostique).

Résultats Le groupe comprenait 66,5 % de femmes; l'âge moyen était de 85,5 ans. Le quart des sujets possédaient des diplômes postsecondaires ou un niveau correspondant; 54,7 % n'avaient plus de conjoint (69,4 % de veuves et 25,3 % de veufs). Les participants avaient de bons scores en termes santé et de qualité de vie, c'est-à-dire entre 57,5 et 93,5 sur 100 au *Short Firm-36* et entre 44,0 et 57,0 au *CAASP-19*; ils étaient satisfaits des soins reçus d'un médecin de famille, leurs scores variant entre 3,8 et 4,3 sur 5 au *Patient Satisfaction Questionnaire-18*; et ils recouraient peu aux services de santé, 70 % d'entre eux n'ayant fait aucune visite à l'urgence et 80 % n'ayant subi aucun examen de laboratoire ou test diagnostique durant l'année précédente.

Conclusion Les personnes autonomes de 80 ans et plus participent au tissu social de la communauté. Elles ont généralement un bon niveau d'instruction, près de la moitié sont veuves et les deux-tiers sont des femmes. Elles obtiennent de bons scores aux échelles qui mesurent le bien-être et la qualité de vie, et utilisent peu les services de santé. Ce sont les personnes âgées en santé.

Numéro d'enregistrement de l'étude NCT00452465 (ClinicalTrials.gov).

POINTS DE REPÈRE DU RÉDACTEUR

- Au Canada, le nombre et le pourcentage des personnes de 80 ans et plus dans la population est en croissance actuellement. Malgré les stéréotypes qui présentent les plus âgés comme des individus frêles, les membres de cette cohorte ont des niveaux de santé physique, d'habileté cognitive, de condition de vie et d'activités très variables.

- La plupart des études portant sur les personnes âgées sont entreprises dans le contexte de certaines maladies spécifiques. La présente étude est une analyse descriptive des caractéristiques démographiques d'une cohorte de personnes de 80 ans et plus possédant une bonne fonction cognitive et vivant dans la communauté, de leur état de santé, de l'utilisation qu'ils font des ressources communautaires et des services de santé, et de leur satisfaction à l'égard des soins de santé; ces personnes ont accepté de participer à un essai randomisé portant sur un programme de soins infirmiers plutôt que sur une condition médicale particulière.

- Les personnes âgées de cette cohorte vivent dans le milieu naturel, sont autonomes et cognitivement alertes, et participent au tissu social de leur communauté et de leur famille. Elles sont généralement bien instruites, plus de la moitié sont veuves et les deux-tiers sont des femmes. Elles obtiennent de bons scores aux mesures de bien-être et de qualité de vie, et utilisent peu les services de santé.

Cet article a fait l'objet d'une révision par des pairs.
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Seniors aged 80 years and older—whom we refer to as *old elderly* in this paper—have increased in both number and proportion of the Canadian population. Between 1991 and 2001, this group increased by 41% to 932 000. Statistics Canada figures[1] for 2012 indicated that there were 1.4 million old elderly, constituting 4.1% of Canada's population. Despite stereotypes that depict the old elderly as a frail group, the physical health, cognitive skills, living situations, and activity levels of this cohort are quite varied. Some reach the age of 80 having accumulated many medical problems. However, the other end of the spectrum finds older seniors who are healthy, active, and alert with very few health issues, few or no ongoing medications, and living independently without assistance.[2,3]

There are few publications focused on the health status of independent, community-dwelling old elderly that are not reported as part of studies of specific medical conditions.[4,5] This study is a descriptive analysis of demographic characteristics, health status, use of community resources and health services, and satisfaction with care in a cohort of cognitively functioning, community-dwelling elderly aged 80 years and older, who were recruited into a randomized controlled trial investigating a nurse-based program of care rather than any specific medical condition. All outcomes are compared by sex.

METHODS

The Eldercare Project was a study of a nursing assessment and management intervention for community-living elderly, aged 80 years and older. The study's eligibility criteria resulted in recruitment of a group of very elderly people who were cognitively functional (Mini-Mental State Examination score of 25 or higher), living at home with or without a companion, and able to function independently in activities of daily living. We believe they represent a very high-functioning sample of the total population of older seniors in this province.

The cohort was recruited between 2007 and 2010 in and around the city of St John's, Nfld, through family physicians who were members of a practice-based research network. Baseline data collected before the individuals were randomized to the intervention or usual-care groups are reported here. At this stage of data collection, participants represented a common cohort that met the eligibility criteria for the study. Demographic characteristics collected included age, sex, education, and marital status. Health-related quality of life was measured by the Short Form–36 (SF-36) health survey and the CASP-19 (control, autonomy, self-realization, and pleasure) scale. The SF-36 is a measure of health status that came out of the Medical Outcomes Study conducted by the RAND Corporation.[6,7] It measures 8 domains of health on a scale of 0 to 100. The CASP-19 is a validated measure of quality of life designed specifically for the elderly. The CASP-19 score ranges from 0 to 57; higher scores indicate higher quality of life.[8] Community resources were grouped as *informal* (relationships and activities with family and friends), *intermediate* (activities or organizations such as community clubs and groups or church-sponsored activities that help bring citizens of a community together), and *formal* (government-provided or privately paid services). The Patient Satisfaction Questionnaire–18 (PSQ-18) measures satisfaction with 7 aspects of patient care on a scale of 1 to 5, in which higher scores indicate a greater degree of satisfaction.[9] The number of family physicians visits was based on family medicine chart reviews, and data on hospitalizations and emergency department visits were obtained, with patient consent, from hospital databases.

RESULTS

A total of 236 individuals were recruited from the 617 who were approached (38.2%). A total of 157 (66.5%) were women; the average (SD) age of the cohort was 85.5 (4.0) years. Ages ranged from age 80 to 100 years. Women were, on average, about a year older than men: 85.9 versus 84.7 ($P=.33$). **Table 1** provides the details of age and sex distribution.

Education. A quarter of our cohort had postsecondary diplomas or degrees (**Table 2**). Canadian data[10] for people 65 years of age and older show a rate of 40% of people with postsecondary diplomas or degrees. Given that this study population is 15 years older than the 65 and older subgroup of Canadians, the education level is probably comparable to the national data.

Marital status. Perhaps reflecting their generation, only 2.5% of the cohort individuals were divorced or separated and 5.1% had never married. Overall, 54.7% were widowed (69.4% of women and 25.3% of men), while 37.7% were still married and living with their spouses. However, there were noticeable differences among the men and women of our cohort. For example, 68.4% of our male participants were still married and living with a spouse, while only 22.3% of women had this companionship. This speaks to vulnerability in elderly women, who are also, on average, older than men in this cohort. **Table 2** provides a breakdown of the sex differences by marital status.

Health status and quality of life. In the 8 domains of health status measured by the SF-36 (**Table 3**), men and women differed only in the physical health domain; men scored significantly higher than their female counterparts did in

Table 1. Distribution of the study group by age and sex

SEX	ALL AGE GROUPS, N (%)	80-84 Y, N (%)	85-89 Y, N (%)	90-94 Y, N (%)	95-100 Y, N (%)	MEAN (SD) AGE, Y
Female	157 (66.5)	69 (43.9)	59 (37.6)	22 (14.0)	7 (4.5)	85.9 (4.2)
Male	79 (33.5)	46 (58.2)	24 (30.4)	8 (10.1)	1 (1.3)	84.7 (3.6)
Overall	236 (100.0)	115 (48.7)	83 (35.2)	30 (12.7)	8 (3.4)	85.5 (4.0)

Table 2. Distribution of the study group by education level and marital status

CHARACTERISTIC	WOMEN, N (%)	MEN, N (%)	OVERALL, N (%)
Education level			
• Less than grade 9	19 (12.1)	16 (20.3)	35 (14.8)
• Grade 9-12 without diploma	31 (21.5)	17 (19.7)	48 (20.3)
• High school diploma	34 (21.7)	16 (20.3)	50 (21.2)
• Some trades or college	11 (7.0)	4 (5.1)	15 (6.4)
• Trades or college diploma	23 (14.6)	1 (1.3)	24 (10.2)
• Some university	20 (12.7)	9 (11.4)	29 (12.3)
• University degree	19 (12.1)	16 (20.3)	35 (14.8)
Marital status			
• Single	10 (6.4)	2 (2.5)	12 (5.1)
• Married	35 (22.3)	54 (68.4)	89 (37.7)
• Widowed	109 (69.4)	20 (25.3)	129 (54.7)
• Separated or divorced	3 (1.9)	3 (3.8)	6 (2.5)

Table 3. Mean (SD) scores on the 8 components of the Short Form–36 health survey: *Each domain is measured on a scale of 0 to 100, with higher scores representing higher levels of functioning.*

COMPONENT	WOMEN, MEAN (SD) SCORE	MEN, MEAN (SD) SCORE	OVERALL, MEAN (SD) SCORE
General health	67.0 (19.8)	67.7 (18.9)	67.2 (19.5)
Physical health	54.6 (28.3)	63.3 (27.4)*	57.5 (28.3)
Role limitations owing to physical health	70.4 (37.5)	68.4 (37.1)	69.7 (37.3)
Role limitations owing to emotional health	92.6 (22.8)	95.4 (17.5)	93.5 (21.2)
Energy or fatigue	61.3 (24.6)	66.9 (20.7)	63.2 (23.4)
Emotional well-being	86.2 (13.4)	85.8 (14.7)	86.1 (13.8)
Social functioning	85.8 (25.6)	84.7 (24.7)	85.4 (25.2)
Pain	74.5 (24.7)	78.7 (23.7)	75.9 (24.4)

*$P<.05$.

terms of physical health status (63.3 vs 54.6, $P=.025$). In general, however, despite their advanced age, the cohort scored between 57.5 and 93.5 out of 100 on the 8 domains of the SF-36.

On the CASP-19, mean scores for men (44.4) and women (44.9) in our cohort were not significantly different; both groups scored quite high, in line with the generally high health status scores measured by the SF-36.

Use of community resources. The use of community-based resources (**Table 4**) was generally high among both men and women; this was especially true for informal resources, which were used by 86.0% of participants. However, use of formal (61.4%) and intermediate (68.2%) community-based resources was also high in this cohort.

Satisfaction with family physician care. With the exception of the amount of time spent with their family physicians, the individuals in this cohort were highly satisfied (range 3.8 to 4.3) with the care provided by their regular family doctors. **Table 5** provides a breakdown of PSQ-18 scores.

Table 4. Use of community-based resources

RESOURCES	WOMEN, N (%)	MEN, N (%)	OVERALL, N (%)
Formal resources (eg, Meals on Wheels or housekeeping services)	99 (63.1)	46 (58.2)	145 (61.4)
Intermediate resources (eg, participation in community or church groups)	113 (72.0)	48 (60.8)	161 (68.2)
Informal resources (eg, relationships or activities with friends and family)	138 (87.9)	65 (82.3)	203 (86.0)

Table 5. Satisfaction with family physician care: *Patient Satisfaction Questionnaire–18 scores on a scale of 1 to 5, with higher scores indicating greater satisfaction.*

VARIABLE	WOMEN, MEAN (SD) SCORE	MEN, MEAN (SD) SCORE	OVERALL, MEAN (SD) SCORE
General satisfaction	4.0 (0.65)	4.1 (0.65)	4.0 (0.65)
Technical quality of care	3.9 (0.56)	3.9 (0.65)	3.9 (0.59)
Interpersonal manner	4.3 (0.58)	4.3 (0.59)	4.3 (0.58)
Communication	4.0 (0.60)	4.0 (0.75)	4.0 (0.65)
Financial aspects	4.1 (0.59)	4.2 (0.76)	4.1 (0.65)
Time spent with doctor	3.0 (0)	3.0 (0)	3.0 (0)
Accessibility and convenience	3.8 (0.55)	3.8 (0.55)	3.8 (0.55)

Health care services use. Participants consented to having their information on health services use accessed for the year before enrolment. Specifically, the number of family doctor visits, visits to the emergency department, diagnostic services used, and admissions to hospital were assessed. The mean number of each of these types of encounters is detailed in **Table 6**. However, measures of central tendency do not always provide a complete picture. While the average number of visits to a family physician in the previous year was approximately 7.5, there were 8 people (2 women and 6 men) who had between 20 and 40 visits. The average number of emergency department visits was just 0.5 because 69.9% of the cohort (49 men and 116 women) had no emergency department visits at all. Similarly, 80.1% (57 men and 132 women) had not used any diagnostic services in the 1-year period before recruitment.

DISCUSSION

Undoubtedly, this paper does not represent an accurate picture of all octo-nonagenarians. However, we believe it does reflect the subgroup of people who are cognitively functioning and living independently in the community. As this paper reveals, people in this group are, to a great extent, healthy, robust, contributing to the social fabric of their families and communities, and using few health care services.

The information in this paper is primarily of interest to family physicians who provide the bulk of medical care to the elderly including the old elderly. Knowing the proportion of well elderly in their practices can inform estimates of the burden of clinical need. Also, much of the care of these well elderly might be more easily provided by a practice nurse or nurse practitioner. This paper is also important to health care planners who might need to consider the well old elderly as different than the frail elderly when planning allocation of public health resources. If health care planners know the proportion of well elderly in their population of interest, their estimation of service needs might change.

Limitations

This study has some limitations in terms of generalizability. It was conducted in a single city in Canada—St John's, Nfld—which has a very culturally and genetically homogeneous population. Also, it is not a random population of people living independently in the community, but a cohort of individuals who were eligible for, who were invited by their physicians to participate in, and who chose to participate in a randomized trial (perhaps because they felt well enough). With these considerations in mind, it is still likely to be a fair reflection of this subgroup of our elderly population and we should be careful with our assumptions that the old elderly are always frail and use up much of our health care resources.

Conclusion

There exists a subgroup of people aged 80 years and older who live in the community, function independently in their lives, are cognitively alert, and are involved in the social fabric of society and their families. They are generally well educated, slightly more than half are widowed, and two-thirds are women. They score well on

Table 6. Health care services use in the year before recruitment

VARIABLE	WOMEN, MEAN (95% CI)	MEN, MEAN (95% CI)	OVERALL, MEAN (95% CI)
No. of family doctor visits*	7.69 (6.8-8.5)	7.59 (6.4-8.7)	7.65 (6.96-8.35)
No. of emergency department visits†	0.48 (0.17-0.80)	0.67 (0.34-0.99)	0.54 (0.31-0.78)
No. of diagnostic services used‡	0.21 (0.11-0.30)	0.41 (0.24-0.59)	0.27 (0.19-0.36)
No. of hospital admissions§	0.18 (0.09-0.27)	0.21 (0.09-0.33)	0.19 (0.12-0.26)

*A total of 8 people actually had between 20 and 40 visits in the previous year: 2 women and 6 men. Six people had no visits: 1 man and 5 women.
†A total of 165 people had no emergency department visits: 49 men and 116 women.
‡A total of 189 people used no diagnostic services: 57 men and 132 women.
§A total of 202 people had no hospitalizations: 64 men and 138 women.

scales that measure well-being and quality of life, and they use few health services with the exception of visiting their family doctors about every 2 months on average. They are the healthy aged.

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Contributors
All authors contributed to the concept and design of the study; data gathering, analysis, and interpretation; and preparing the manuscript for submission.

Competing interests
None declared

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