

# Readiness for the aging population in private dental practices

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## ABSTRACT

**Background:** As more adults reach advanced age with natural teeth, there is an increasing need for dental and dental hygiene practices to provide care for older adults and individuals living with dementia. Little is known about how well these populations are accommodated in private practice. **Methods:** Following approval from the Research Ethics Board at Mount Allison University, a survey was sent to the 517 practising dental hygienists in New Brunswick, Canada. They were asked to rate on 5-point scales their geriatric oral care knowledge, their willingness to receive more education on the topic, and how frequently they adjusted their care provision to meet the needs of older (age 70+) clients and those living with dementia. **Results:** A total of 121 dental hygienists responded (23.4% response rate). Overall, respondents were willing to learn more about geriatric care, but lacked knowledge about the oral health effects of certain medications frequently used by older adults, and about techniques for accessing the oral cavity of clients with dementia. Many accommodations recommended by geriatric specialists were not consistently carried out. **Discussion:** Given that older adults and adults with dementia make up an increasingly large part of the population in need of oral care, geriatric and dementia oral care needs should be emphasized in dental and dental hygiene practices and continuing education for dental hygienists. **Conclusion:** More research is required on the impact of integrating accommodations for older clients and clients with dementia into clinical practice, as well as how oral care is experienced by these populations.

## RÉSUMÉ

**Contexte :** Un plus grand nombre d'adultes ont toujours leurs dents naturelles lorsqu'ils atteignent un âge avancé. Il est donc de plus en plus nécessaire que les cabinets dentaires et d'hygiène dentaire fournissent des soins aux personnes plus âgées et aux personnes atteintes de démence. On ignore dans quelle mesure ces populations sont accueillies dans les cabinets privés. **Méthodologie :** À la suite de l'approbation du comité d'éthique de la recherche de l'Université Mount Allison, un sondage a été envoyé aux 517 hygiénistes dentaires en exercice au Nouveau-Brunswick, Canada. Ils ont été invités à évaluer, sur une échelle de 5 points, leurs connaissances en matière de soins buccodentaires gériatriques, leur intérêt à recevoir davantage de formation sur le sujet et la fréquence à laquelle ils ont adapté leur prestation de soins pour répondre aux besoins des clients plus âgés (70 ans et plus) et des personnes atteintes de démence. **Résultats :** En tout, 121 hygiénistes dentaires ont répondu au sondage (un taux de réponse de 23,4 %). Dans l'ensemble, les répondants voulaient en savoir davantage sur les soins gériatriques, mais ne connaissaient pas les effets sur la santé buccodentaire de certains médicaments fréquemment utilisés par les personnes âgées ni les techniques utilisées pour accéder à la cavité buccale des clients atteints de démence. De nombreux accommodements recommandés par les spécialistes en gériatrie n'ont pas été systématiquement mis en œuvre. **Discussion :** Les cabinets dentaires et d'hygiène dentaire et la formation continue des hygiénistes dentaires doivent souligner les besoins des adultes plus âgés et des adultes atteints de démence puisque ceux-ci représentent une part de plus en plus importante de la population nécessitant des soins buccodentaires. **Conclusion :** Des recherches supplémentaires sont nécessaires sur les conséquences de l'intégration des accommodements pour les clients plus âgés et les clients atteints de démence dans la pratique clinique, ainsi que sur la façon dont ces populations perçoivent les soins buccodentaires.

**Keywords:** accommodations for dementia patients; dental hygienists; aging populations; geriatric dental care; oral care and dementia

**CDHA Research Agenda category:** access to care and unmet needs

## INTRODUCTION

There is a rising demand for geriatric dental care in Canada: the percentage of adults with no natural teeth has decreased from 23.6% to 6.4%<sup>1</sup> since the early 1970s, there are over 5.8 million seniors in Canada,<sup>2</sup> and more than 260,000 individuals living with dementia are residing

in the community outside long-term care facilities.<sup>2</sup> Older adults form the age group least likely to access dental care in Canada,<sup>1,3</sup> and inadequate oral care has both psychological and physical consequences that may be particularly concerning for older clients.

## PRACTICAL IMPLICATIONS OF THIS RESEARCH

- As the population ages, more individuals can expect to keep most, if not all, of their teeth thanks to healthier lifestyles and advances in oral and medical care.
- Accommodating the physical and cognitive disabilities of older clients is vital to meeting their oral care needs effectively.
- Enhanced education on geriatric oral care should be provided to today's oral health professionals.

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Psychological well-being, willingness to socialize, and quality of life have all been linked to adequate oral health in older adults.<sup>4,5</sup> Moreover, medical conditions such as diabetes, cardiovascular disease, respiratory infections, rheumatoid arthritis, aspiration pneumonia, and osteoporosis have all been shown to have some association with oral disease, although they are not causally related.<sup>6-10</sup> Multiple barriers have been identified as playing a role in limiting access to oral care for older adults,<sup>11-13</sup> including a) costs<sup>1,14</sup> (less than half of older Canadians have dental insurance)<sup>1</sup>; b) ageism among oral health care practitioners<sup>12</sup>; c) lack of geriatric education in dental and dental hygiene training<sup>15-20</sup>; and d) the age-related physical changes that make geriatric oral care more complex (e.g., gingival recession, alveolar bone loss<sup>13,21</sup>). Knowledge regarding medication use has been identified as an important topic in geriatric oral care training. Of particular importance is medication metabolism in the aged body as well as the oral health effects of medications (e.g., bisphosphonates, anti-hypertensives) commonly prescribed to older adults.<sup>13,22,23</sup>

People with dementia, in particular, have been found to receive less dental care<sup>24,25</sup> and, furthermore, may pose more specific challenges to health care professionals.<sup>26,27</sup> Clients with dementia may be less likely to perform oral self-care,<sup>26,28</sup> are less likely to be able to describe symptoms and pain,<sup>26,29</sup> and may be less able to provide informed consent and to understand proposed treatment options.<sup>30</sup> Moreover, carrying out invasive dental treatments before the dementia progresses may be essential, as is the involvement of caregivers in treatment decisions.<sup>27</sup>

In sum, there is an increasing number of older adults and adults with dementia needing oral care, and little is known about whether private dental or dental hygiene practices are prepared to accommodate these populations. The present study addressed the following research questions:

1. Are dental hygienists knowledgeable about and likely to seek out more education about geriatric oral care?
2. Are private dental and dental hygiene practices currently accommodating the needs of older clients and clients living with dementia?

## METHODS

All 517 members of the New Brunswick Dental Hygienists Association (NBDHA) received an email via the NBDHA inviting them to participate in an online survey hosted on LimeSurvey<sup>31</sup> and offered in English and French. The survey was designed by the researchers based on clinical experience and a review of the literature to identify relevant topics in geriatric oral care. The second author had many years of experience in designing and carrying out research in the field of gerontology and health care access while the third author had extensive experience in

providing oral care to geriatric clients and teaching in a dental hygiene program. The survey was pilot tested with 2 dental hygienists for comprehension and time needed to complete the survey. This feedback was used to make minor changes to wording to improve comprehension.

The final version of the survey included 4 sections: sample demographics, practice accessibility, knowledge, and accommodations. **Demographic** questions included age, gender, years licensed as a dental hygienist, and the size of the practice where they were presently working. For the **practice accessibility** questions, respondents could select all that were present in their workplace from the following: a) “wide doors to accommodate walkers and wheelchairs”; b) “ramps/elevators so stairs can be avoided”; c) “handicap parking close to the entrance”; and d) “a handicap accessible dental chair”. For **knowledge** questions, dental hygienists rated their level of knowledge about a) the effects of the following medications on oral health (e.g., anti-anxiety medication, antipsychotics, bisphosphonates, and antihypertensive medication); b) the oral health effects of chronic illnesses common in older adults (e.g., osteoporosis, diabetes, and cardiovascular disease); and c) techniques to access the oral cavity of clients with dementia. For each of these items, respondents were asked, “If it were available, how likely would you be to take advantage of continuing education opportunities on this topic?” Questions were answered on a 5-point rating scale, ranging from “not at all knowledgeable/not at all likely” to “extremely knowledgeable/extremely likely”.

A set of **accommodations** questions was used twice: dental hygienists first answered the questions in relation to clients over age 70 who do not suffer from significant cognitive impairment and then answered the same questions in relation to their clients with dementia. Although age 65 is often used in social policy contexts to identify older adults, older ages are often used in health care to identify individuals who need geriatric care. For the Canadian population, the age of 70 has been shown to be the point where homogeneity in terms of health care needs begins to increase.<sup>32</sup>

For the accommodations questions, respondents were asked “how often do you”: a) “lengthen appointments”; b) “shorten appointments (requiring more appointments to complete treatments)”; c) “take extra time to discuss daily oral care routines”; d) “discuss long-term outcomes (e.g., future need for dentures)”; e) “conduct background research concerning the medications taken by older patients”; f) “review patients’ chronic illnesses affecting oral health”; g) “consult with family physicians”; and h) “invite caregivers into the treatment room.” For each item, the respondent rated the frequency and the acceptability (“How acceptable would it be to make this accommodation within the practice where you work?”) on a 5-point rating scale ranging from “never/not acceptable” to “always/fully acceptable”. The survey is available from the authors.

**Statistical analyses**

For knowledge and accessibility items, one-sample t-tests compared the sample mean to the midpoint on the scale, with Bonferroni correction for alpha inflation. Dependent groups t-tests compared accommodation responses for older adults to responses for clients with dementia. Using G\*Power,<sup>33</sup> a total sample size of 45 was needed for the one-sample t-tests, and 101 for the dependent groups t-tests (effect size = 0.25, power = 0.80).

**RESULTS**

**Sample demographics**

The sample included 121 dental hygienists (23.4% of the eligible population), with a mean age of 41 years (s = 11.04); all but 2 were women. Most (86%) reported working in general dentistry practices, 8.3% in periodontics, 6.6% in education, 5% in independent dental hygiene practices, and 2.5% in long-term care facilities. On average, participants were in practices with 3 dentists (s = 4.19) and 4 dental hygienists (s = 3.52). Practices served, on average, a client population where 32% (s = 17.53%) were 70 years and older. Respondents suspected that an average of 14.67% (s = 10.63) of their clients had dementia (72% of the sample reported that they suspected 10% of their clients have dementia).

**Practice accessibility**

Most respondents reported that accessible parking (99%), wide doors (92%), and ramps or elevators (85%) were available. However, only 55% of practices offered a universally accessible dental chair.

**Knowledge**

Less than half of respondents (40.4%) indicated having little knowledge of the effects of bisphosphonates on oral health, and more than half of respondents (64.2%) had little knowledge of techniques that facilitate accessing the oral cavity of clients with dementia. In contrast, participants reported being somewhat knowledgeable or better about the effects of diabetes (99%), cardiovascular disease (95.3%), and osteoporosis (86.2%) on oral health. Respondents reported that they would be likely to take advantage of continuing education opportunities for all topics listed, with ratings higher than the scale midpoint ( $p < 0.001$ ). Detailed results are shown in Figure 1.

**Accommodations for clients over age 70 without dementia**

As shown in Table 1, the following accommodations for clients without dementia were almost always performed: a) taking extra time to discuss oral care routines with clients; b) discussing long-term outcomes with clients; and c) reviewing clients' chronic illnesses. However, two-thirds of respondents indicated that they never or almost never shortened appointments for older clients, and over 40% of respondents never or almost never lengthened appointments. Half of the respondents never or almost

Figure 1. Level of knowledge on topics relevant to older clients in the context of oral health

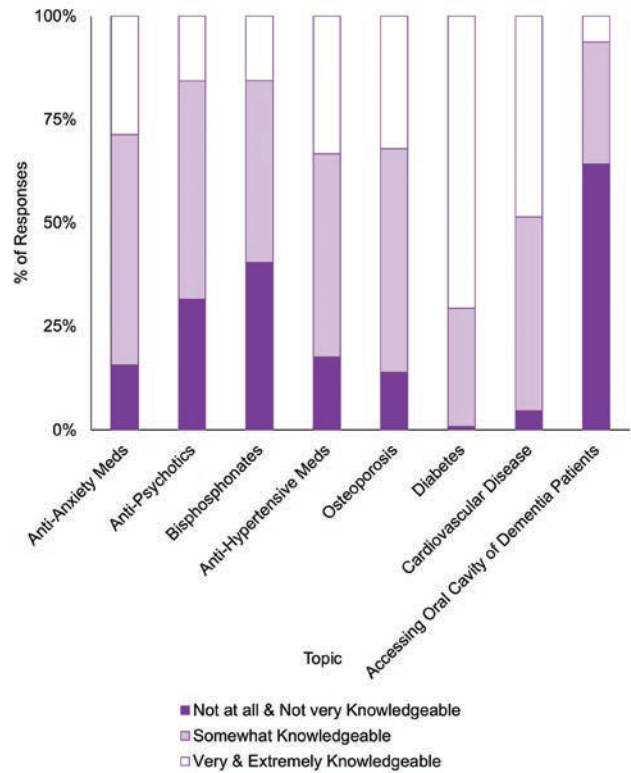
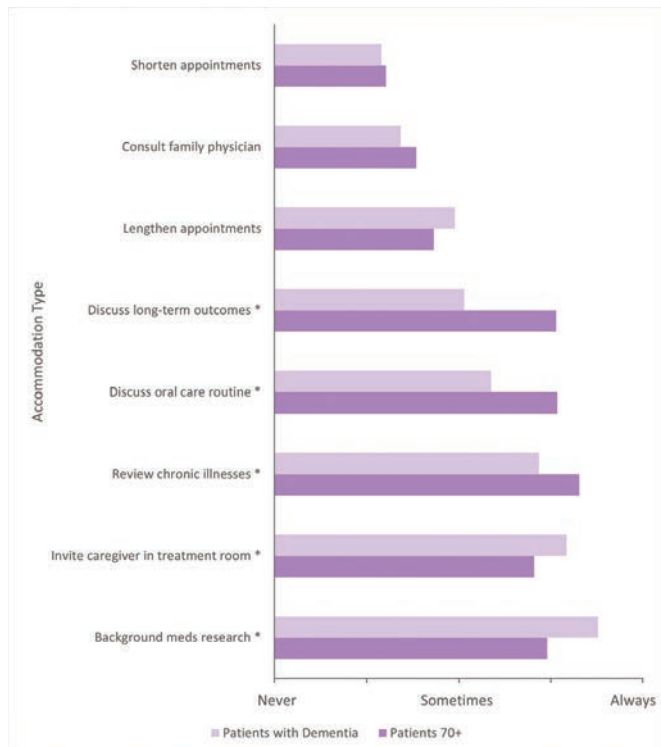


Figure 2. Mean frequencies for accommodations made for clients over age 70 with and without dementia



\*Differences were significant at a Bonferroni-adjusted  $p$  of 0.01.

**Table 1.** Accommodations made for clients without dementia compared to midpoint

		n <sup>a</sup>	Responses on low end of scale <sup>b</sup> (%)	Mean <sup>c</sup> scale response	SD	$p$ (mean against midpoint)
Lengthening appointments	Frequency	107	43.9	2.73	1.31	0.035
	Acceptability	104	13.5	4.01	1.18	<0.001 <sup>d</sup>
Shortening appointments	Frequency	100	64.0	2.21	1.31	<0.001 <sup>d</sup>
	Acceptability	90	16.7	3.96	1.34	<0.001 <sup>d</sup>
Extra time to discuss oral care routines	Frequency	108	3.7	4.07	0.94	<0.001 <sup>d</sup>
	Acceptability	100	2.0	4.61	0.75	<0.001 <sup>d</sup>
Discussing long-term outcomes	Frequency	106	6.6	4.06	0.95	<0.001 <sup>d</sup>
	Acceptability	102	2.9	4.62	0.77	<0.001 <sup>d</sup>
Background research on medications	Frequency	107	16.8	3.96	1.23	<0.001 <sup>d</sup>
	Acceptability	103	1.0	4.70	0.65	<0.001 <sup>d</sup>
Consulting with family physician	Frequency	105	51.4	2.54	1.13	<0.001 <sup>d</sup>
	Acceptability	99	9.1	4.30	1.14	<0.001 <sup>d</sup>
Reviewing client's chronic illnesses	Frequency	108	2.8	4.31	0.87	<0.001 <sup>d</sup>
	Acceptability	102	1.0	4.73	0.62	<0.001 <sup>d</sup>
Inviting family members/caregivers into treatment room	Frequency	106	13.2	3.82	1.15	<0.001 <sup>d</sup>
	Acceptability	102	2.0	4.73	0.65	<0.001 <sup>d</sup>

<sup>a</sup>Unequal sample sizes were present because some respondents omitted some questionnaire items

<sup>b</sup>"Never" and "almost never" responses were summed, as were "not at all acceptable" and "unacceptable" responses

<sup>c</sup>Scale ranged from 1 (never/not at all acceptable) to 5 (always/fully acceptable)

<sup>d</sup>Significant at Bonferroni-adjusted  $p$  of 0.006

never consulted with clients' family physicians. All accommodations were perceived as being acceptable to fully acceptable within the dental practices.

#### Accommodations for clients with dementia

As can be seen in Table 2, some accommodations for clients with dementia were being made almost always: a) providing oral care instructions to caregivers; b) conducting background research on clients' medications; and c) inviting caregivers into the treatment room. In contrast, taking extra time to discuss oral care routines with clients with dementia, reviewing chronic illnesses, consulting with family physicians, and discussing long-term outcomes occurred less frequently, and the duration of appointments was infrequently modified for clients with dementia. Despite these relatively low rates of accommodations, such adjustments were perceived as acceptable to fully acceptable within the dental practices.

#### Accommodations for clients over age 70 without dementia compared to clients with dementia

As shown in Figure 2, only 2 types of accommodations were performed more frequently with clients with dementia than with older adults without dementia, namely inviting caregivers into the treatment room ( $t(90) = -3.46, p = 0.001$ ) and conducting background research on medications ( $t(91) = -3.82, p < 0.001$ ). Other accommodations were performed

less often with clients with dementia, namely reviewing chronic illnesses ( $t(90) = 3.66, p < 0.001$ ); discussing oral care routines ( $t(91) = 4.87, p < 0.001$ ); and discussing long-term outcomes ( $t(90) = 8.69, p < 0.001$ ). There was no difference in the frequency of consulting with family physicians and adjusting the duration of appointments.

#### DISCUSSION

Overall, these findings indicate that dental hygienists in New Brunswick perceive their practices as willing to make accommodations for older (i.e., 70+ years) clients and those living with dementia. Respondents were also willing to learn more about geriatric oral care, consistent with past research.<sup>34</sup> However, key findings suggest that the accommodations needed to provide optimal access to oral care for these populations are not being offered consistently. For example, in terms of physical space, while building features mandated by provincial regulations (e.g., accessible parking) were present in most cases, non-regulated features (e.g., universally accessible dental chairs) were only available in half of the practices. Given the large number of older adults with at least some mobility challenges, traditional dental chairs may be a substantial barrier to seeking care.<sup>12,15</sup>

In terms of knowledge, respondents were most familiar with the relationship between oral health and diabetes,

**Table 2.** Accommodations made for clients with dementia compared to scale midpoint

		n <sup>a</sup>	Responses on low end of scale <sup>b</sup> (%)	Mean <sup>c</sup> scale response	SD	p (mean against midpoint)
Lengthening appointments	Frequency	93	36.6	2.96	1.34	0.758
	Acceptability	92	7.6	4.35	1.05	<0.001 <sup>d</sup>
Shortening appointments	Frequency	88	64.8	2.16	1.19	<0.001 <sup>d</sup>
	Acceptability	83	15.7	4.00	1.36	<0.001 <sup>d</sup>
Extra time to discuss oral care routines with client	Frequency	92	20.7	3.35	1.17	0.005 <sup>d</sup>
	Acceptability	88	5.7	4.42	0.97	<0.001 <sup>d</sup>
Extra time to discuss oral care routines with caregiver	Frequency	92	8.7	4.09	1.1	<0.001 <sup>d</sup>
	Acceptability	92	3.3	4.77	0.73	<0.001 <sup>d</sup>
Discussing long-term outcomes	Frequency	93	29.0	3.06	1.19	0.601
	Acceptability	85	5.9	4.33	1.06	<0.001 <sup>d</sup>
Background research on medications	Frequency	92	5.4	4.51	0.98	<0.001 <sup>d</sup>
	Acceptability	91	1.1	4.86	0.55	<0.001 <sup>d</sup>
Consulting with family physician	Frequency	92	60.9	2.37	1.10	<0.001 <sup>d</sup>
	Acceptability	88	9.1	4.27	1.15	<0.001 <sup>d</sup>
Reviewing chronic illnesses	Frequency	92	14.1	3.87	1.19	<0.001 <sup>d</sup>
	Acceptability	88	5.7	4.52	0.91	<0.001 <sup>d</sup>
Family members/caregivers in treatment room	Frequency	92	6.5	4.17	1.00	<0.001 <sup>d</sup>
	Acceptability	90	2.2	4.76	0.69	<0.001 <sup>d</sup>

<sup>a</sup>Unequal sample sizes were present because some respondents omitted some questionnaire items

<sup>b</sup>"Never" and "almost never" responses were summed, as were "not at all acceptable" and "unacceptable" responses

<sup>c</sup>Scale ranged from 1 (never/not at all acceptable) to 5 (always/fully acceptable)

<sup>d</sup>Significant at Bonferroni-adjusted *p* of 0.006

which is a frequent health issue in New Brunswick.<sup>35</sup> In contrast, only about half of respondents reported being very knowledgeable about the relationship between oral health and cardiovascular disease (also frequent in the province). Furthermore, less than one-third were very knowledgeable about the effects of antihypertension, antianxiety, and antipsychotic medications on oral health. Finally, while 32% of respondents reported being very knowledgeable about the effects of osteoporosis on oral health, only 16% were knowledgeable about the effects of bisphosphonates used to treat osteoporosis. Knowledge discrepancies such as these highlight the need for continuing education on the oral health effects of medications used by older adults.<sup>13</sup> Of particular concern was the finding that over 64% of respondents had little knowledge of techniques used to access the oral cavity of clients with dementia. If individuals living with dementia are to remain in their communities as their disease progresses and if residents in long-term care facilities are to receive adequate dental hygiene care, oral care professionals need to acquire the skills to best implement oral care with clients who have dementia.<sup>36</sup>

Some accommodations for older adults with dementia occurred "almost never" or "only sometimes". One possible reason for these findings is that these accommodations are particularly time consuming, such as consulting with a family physician and adjusting appointment duration and frequency. It is quite likely, however, that there may be consequences when such accommodations are not carried out. A dental hygienist who does not adjust appointment duration with clients with dementia could be working with a client who becomes increasingly agitated as the appointment progresses, resulting in clients or caregivers who are unwilling to return for future care.<sup>37</sup> Similarly, when a client who has mobility issues needs extra time to settle into the dental chair, or when a client requires lengthy explanations of procedures being carried out, the relatively short appointments allocated for "standard" clients may not be optimal.<sup>37</sup>

Interestingly, many accommodations listed in the survey were not used more often when clients were recognized as having dementia. For example, discussing long-term outcomes (such as the need for dentures) with

individuals living with dementia and their caregivers may be particularly important,<sup>11,27,37</sup> since those with dementia tend to be more accepting of dental treatment interventions in the early stages of cognitive impairment<sup>28</sup>. A potentially encouraging finding was that, although respondents were less likely to discuss oral care routines with clients with dementia, they did report very frequently discussing oral care with their caregivers. However, further research is needed to explore whether such conversations involve more specific, customized instructions for providing adequate oral care,<sup>38</sup> or whether it is simply the same reminder used with all clients, namely to “make sure they brush and floss regularly”.

Overall, the results indicated a possible discrepancy between the reported acceptability of providing accommodations and the frequency with which these are offered. One possibility is that these accommodations are only provided when clients ask for them, suggesting that educating clinical staff to actively offer accommodations could be useful.<sup>13</sup> Alternatively, respondents may have been overly positive when rating the likelihood that their workplace would accept modifications to routine. Indeed, modifying appointment length according to the cognitive and psychosocial needs of the client could be a costly and disruptive adjustment in a busy practice. When physicians were interviewed about the challenges of integrating large numbers of older patients into their practices, not only the complexity of geriatric care, but also the greater time demands of caring for older patients were highlighted as key issues.<sup>39</sup> Clearly, investigations on the impact of geriatric clients on the workflow of dental and dental hygiene practices are also needed.

### Limitations

Several limitations need to be acknowledged in interpreting these study findings. First, a self-report questionnaire was used, and for some items, respondents were asked to report on whether the owner of the practice would be willing to provide accommodations for certain clients. Observational studies carried out in private practices, as well as in-depth interviews with both dental hygienists and dentists may provide more thorough perspectives. Second, as shown in the tables, some survey items were not answered, and this could have skewed the results. More importantly, it is possible that the dental hygienists who chose to respond to the survey were particularly interested in the topic of geriatric oral care and these results may overestimate the knowledge of dental hygienists in New Brunswick regarding geriatric care. More in-depth studies addressing the quality of geriatric care being offered in private dental practices are clearly needed.

### CONCLUSION

As the Canadian population ages and more individuals reach advanced age with their natural teeth, geriatric oral care will need to be emphasized in private dental and

dental hygiene practices. Moreover, although there has been a focus on improving the oral care provided in long-term care settings,<sup>1</sup> it is also important to recognize that, as the number of Canadians living with dementia in the general community increases, their oral care needs must be met in private practices. Thus, accommodations for both physical and cognitive disabilities should be made, such as providing universally accessible dental chairs, modifying appointment lengths, and involving caregivers in appointments. Educational opportunities regarding the oral health effects of medications frequently prescribed to older adults should also be enhanced. Finally, more research is needed on how oral care is experienced by older adults and adults living with dementia, as well as the impact on clinical practices of providing accommodations for these populations.

### CONFLICTS OF INTEREST

The authors have declared no conflicts of interest.

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