

Validation of a Questionnaire for Family Physicians: Knowledge, Attitude, Practice on Dementia Care*

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RÉSUMÉ

L'objectif de cette étude était d'élaborer et de valider un questionnaire évaluant les connaissances, les attitudes et les pratiques (CAP) des médecins de famille en matière de soins et de stratégies liés à la démence au Canada. Un questionnaire de 83 items a été élaboré en suivant un processus en plusieurs étapes, avec un groupe d'experts. Le questionnaire a été distribué à 542 médecins de famille de 42 équipes interdisciplinaires de soins de première ligne participant à la mise en œuvre du Plan Alzheimer du Québec. Au total, 369 médecins (68 %) ont rempli le questionnaire. Le taux médian de non-réponse par item était de 0,8 % (0,3 %-8,1 %). Des analyses factorielles exploratoires et une corrélation d'échelle appuient la validité du questionnaire. Le questionnaire final comprenait cinq facteurs et 31 items. Cet instrument s'est avéré fiable pour évaluer les CAP des médecins de famille concernant les soins liés à la démence. Il fournit aux chercheurs, aux cliniciens, aux gestionnaires et aux décideurs un outil pour évaluer une intervention, un programme ou un changement de politique mis en œuvre dans les soins de santé de première ligne pour les patients atteints de démence.

ABSTRACT

Our study objective was to develop and validate a questionnaire assessing the knowledge, attitude, and practice (KAP) of family physicians regarding dementia care and dementia strategies in Canada. Using a multistage process with a panel of experts, we developed and distributed an 83-item questionnaire to 542 eligible family physicians in 42 interdisciplinary primary care teams participating in the Quebec Alzheimer Plan implementation. Altogether, 369 physicians (68%) returned questionnaires. Median item-specific non-response rate was 0.8 per cent (0.3%–8.1%). Exploratory factor analyses and scale correlation supported the questionnaire validity. The final questionnaire contained five factors and 31 items. The KAP questionnaire has proved to be a reliable instrument for assessing the KAP of family physicians regarding dementia care and dementia strategies. This questionnaire provides researchers, clinicians, managers, and decision-makers with a tool to assess an intervention, a program, or a policy change implemented in primary health care for patients with dementia.

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Introduction

Dementia is a significant concern worldwide with an increasing number of people affected by the disease (World Health Organization, 2012). Over-reliance on specialty care results in increased wait times, which in turn results in delayed and inadequate treatment, management, and overall quality of care (Alzheimer Society of Canada, 2010; Aminzadeh, Molnar, Dalziel, & Ayotte, 2012; Amjad, Carmichael, Austin, Chang, & Bynum, 2016). There is a growing consensus among Canadian experts and decision-makers that the focus of dementia care should shift from specialist to primary health care (Moore, Patterson, Lee, Vedel, & Bergman, 2014). Primary health care clinicians are ideally positioned as they usually are the first point of contact and can be as effective as specialists to detect, diagnose, treat, and manage patients and follow-up with their caregivers (Lemire, 2017; Meeuwsen et al., 2012). However, they are not always well-prepared to do so (Boustani, Sachs, & Callahan, 2007; Parmar et al., 2014).

The World Health Organization and the international InterAcademy Partnership for Health Committee on Dementia have called for national or subnational dementia strategies or Alzheimer plans to better organise care for persons with dementia and their caregivers (Chertkow, 2018). Many countries have responded accordingly (Alzheimer's Disease International Publication Team, 2018), and among these, Canada recently launched its national plan (Government of Canada, 2017). Provincial dementia strategies also exist in Ontario, Nova Scotia, British Columbia, Alberta, Manitoba, Newfoundland and Labrador, Saskatchewan, and Quebec (Bergman et al., 2009; Government of Alberta & Alberta

Health Continuing Care, 2017; Government of British Columbia & Ministry of Health, 2012, 2016; Government of Manitoba, 2014; Government of Newfoundland and Labrador, Department of Health and Community Services, & Alzheimer Society of Newfoundland and Labrador, 2004; Government of Nova Scotia & Department of Health and Wellness, 2015; Government of Ontario, Ministry of Health and Long-Term Care, & Ministry of Education [Early Years and Child Care], 2016; Provincial Advisory Committee of Older Persons and the Alzheimer Society of Saskatchewan, 2004).

The Canadian strategy has highlighted the importance of its evaluation using high-quality tools, such as validated questionnaires (Government of Canada, 2017). Multiple factors could influence the success of the strategy and should be measured. One factor involves the physicians' knowledge, attitude, and practice (KAP) – in this case, regarding both dementia care and national and subnational dementia strategies. KAP studies have been widely used to inform health innovation and are based on the theory of planned behaviour (Ajzen, 1991; De Pretto, Acreman, Ashfold, Mohankumar, & Campos-Arceiz, 2015).

However, few questionnaires that measure the KAP of family physicians exist to monitor the implementation and measure the impact of a dementia strategy. Existing questionnaires appear to have limitations, such as (a) examining only one process of care (e.g., detection, diagnosis, or treatment) (Bedard, Gibbons, Lambert-Belanger, & Riendeau, 2014; Boustani et al., 2011; Doherty, Hawke, Kearns, & Kelly, 2015; Hillmer, Krahn, Hillmer, Pariser, & Naglie, 2006; Iracleous et al., 2010;

Milne, Hamilton-West, & Hatzidimitriadou, 2005; Pentzek, Fuchs, Abholz, & Wollny, 2011; Russ, Calvert, & Morling, 2013); (b) or examining only one theme (such as knowledge, attitude, or practice) (Boustani et al., 2011; Kaduszkiewicz, Wiese, & van den Bussche, 2008; Milne et al., 2005; Pakzad, Bourque, Gallant, Donovan, & Sepehry, 2016; Pentzek et al., 2011); (c) or having not been formally validated (Ahmad, Orrell, Iliffe, & Gracie, 2010; Banjo, Nadler, & Reiner, 2010; Gaboreau et al., 2014; Iracleous et al., 2010; Millard & Baune, 2009). The Quebec Alzheimer Plan (QAP, described in Vedel, Sourial, Arsenault-Lapierre, Godard-Sebillotte, & Bergman, 2019), however, is based in primary care and includes a rigorous evaluation plan, which offers an ideal opportunity to develop and validate a comprehensive questionnaire.

The objective of this study was to develop and validate a suitably comprehensive questionnaire to measure family physicians' KAP regarding dementia care and the physicians' attitude towards the QAP.

Methods

Setting

The QAP focuses on the capacity of primary health care clinicians to care for patients with dementia. This plan has been deployed in family medicine groups (FMGs), which were implemented during the primary care reform in Quebec. FMGs are composed of multidisciplinary teams, where six to 12 family physicians working in close collaboration with nurses are the gatekeepers of approximately 1,000–2,000 patients per physician (Diop et al., 2017; Strumpf et al., 2012; Strumpf, Ammi, Diop, Fiset-Laniel, & Tousignant, 2017). In 2011, the Quebec Ministry of Health and Social Services called for volunteer FMGs across the province who wanted to implement the QAP. These FMGs received funds, training, and protocols. The 42 FMGs selected by the Ministry of Health and Social Services started implementing the plan in 2013 (details of the QAP are described in Vedel et al., 2019).

Questionnaire Development and Distribution

The construction of our questionnaire was informed by KAP studies and based on the theory of planned behaviour (Ajzen, 1991). We performed a rapid review of the literature to identify existing questionnaires addressing five key concepts (attitudes, knowledge, practices, primary care, and dementia) published between 2005 and 2014 in English or French and indexed on Medline. The criteria for inclusion were (a) to measure all care processes (detection, diagnosis, and treatment), (b) to feature all three themes (KAP), and (c) to be validated. We identified a total of 31 articles on KAP

questionnaires but they did not adequately address our criteria. We then asked researchers within the Canadian Consortium on Neurodegeneration in Aging team to identify any questionnaires that were not identified through the search strategy and that covered all or most of our criteria. One consortium researcher (SP) proposed her questionnaire that met all our criteria (which has now been published: Pakzad et al., 2016). Working from the French version of the Pakzad's questionnaire, we adapted items to match the Quebec context with the presence of FMGs. We added items to measure KAP in the three concepts of detection, diagnosis, and treatment. Finally, we added new items to better span the care continuum and to evaluate physicians' attitudes towards the QAP (Helfrich, Weiner, McKinney, & Minasian, 2007; Lee, Hillier, & Weston, 2015).

To make the questionnaire available to both Englishand French-speaking physicians in Quebec, and to ensure linguistic and cultural validity of both versions, we first asked a native English-speaking translator to translate the questionnaire from French to English. Then, we performed an evaluation of this translation with a native French speaker and with a bilingual speaker, both expert researchers in dementia, and a French-speaking translator familiar with the tool. Finally, once both versions were deemed equivalent, three types of validity and reliability (content validity, construct validity, and internal consistency) were assessed with French and English participants.

We examined the content validity of the questionnaire, and its acceptability, using cognitive interviewing with nine experts and four end users (Willis, 2004). The experts included six primary care researchers and three clinician-researchers. The end users were all FMG physicians. During individual interviews, we asked if the questions and the instructions were clear; the proposed answers, appropriate; and if there were any missing questions. The questionnaire was revised after each round of content validation with experts and end users (see supplementary Appendix 1 available online).

Physicians working at least one day a week and caring for patients aged 65 and older were considered eligible to complete a questionnaire. Resident physicians were not eligible. Eligibility was determined, in most cases, by information provided by the medical director or the contact person. Because this was not always possible, especially in larger FMGs, we assessed the physicians' eligibility with an initial set of questions on the questionnaire itself. Physicians satisfying the eligibility criteria were then instructed to proceed with the questionnaire.

To maximise our response rate, we adapted our distribution strategy to each FMG, depending on their preference and habits. We first asked the medical director who, in their FMG, was best positioned to help with the distribution. We then asked this contact person in each FMG to provide a list of all their practicing physicians. To minimise burden to the staff, we recommended to the contact person that physicians individually fill out the questionnaire during statutory meetings, or that the questionnaire be distributed to their internal mailbox. In some rare cases, the contact person preferred that the questionnaires be sent by email.

A personalised package was prepared and sent to each physician on the list between May 2014 and May 2015. This package included a copy of the questionnaire, along with a letter explaining the study and two copies of the consent form. In the accompanying letter, physicians were told that this was a questionnaire regarding their knowledge, practices, and attitudes regarding dementia and the QAP, in which their FMG was participating. We instructed physicians to give the completed questionnaire back to the contact person. Once questionnaires were collected, we organised the delivery of the questionnaires from the FMGs to our research centre. We confirmed the eligibility of respondents after receiving completed questionnaires. We performed multiple phone and email reminders with the contact person to maximise the response rate and confirm eligibility of non-respondents.

Analysis

Demographic characteristics of the family physicians who completed the questionnaire were described using means and proportions, as appropriate. As it was not possible to determine the eligibility of the physician before sending the questionnaires, we estimated the response rate by applying the proportion of known non-eligible cases to the overall number of questionnaires initially mailed.

To assess the construct validity and reliability of our questionnaire, we calculated the factor structure and internal consistency of the questionnaire respectively. We conducted an Exploratory Factor Analysis (EFA) to determine the underlying factor structure (Goodwin, 1999). Prior to the EFA, we re-coded answers to negatively stated questions (negatively stated questions were inserted to minimise extreme response bias or acquiescent bias), and we elaborated an a priori factor structure based on clinical judgement and the item-byitem correlation matrix based on the raw survey data. We assessed the proportion of missing data for each item in order to ascertain whether missing data were distributed evenly across items or concentrated within a few items (Fonseca, Costa, Lencastre, & Tavares, 2013). We imputed the missing data prior to the EFA via the expectation-maximisation algorithm (Dempster, Laird, & Rubin, 1977), which uses an iterative estimation approach to obtain consistent estimates of the missing data under the assumption of normality. Items that were sub-questions (questions dependent on the response to a parent question) or demographic questions were left out of the EFA. We used an oblique promax rotation to allow for correlations between factors. We iteratively eliminated items that had a low loading (< 0.3) or were considered poorly understood or designed items based on the feedback from participants.

To determine the number of factors to retain, we used several objective and graphical measures: the Kaiser criterion (retain all factors with an eigenvalue greater than 1, a minimum explained variance of 75%, the scree plot, residual correlations, and a minimum of three items per factor to ensure stability of the solution) (Fabrigar, Wegener, MacCallum, & Strahan, 1999). To facilitate interpretation of the factor solution, we displayed only loadings above the threshold of 0.3 as per convention (Kline, 2014). We produced an inter-item correlation matrix for each factor to verify that each item was not too weakly (less than 0.2) or too highly (greater than 0.9) correlated with other items in the factor. As we used a method that allowed for factors to be correlated together, we also assessed the pairwise correlation between factors. To further validate our final factor solution, we presented the results and sought feedback from the participating FMGs, clinicians, and decisionmakers at the Quebec Ministry of Health and Social Services. Our factor solution was presented to and discussed with clinicians and decision-makers at four different meetings in the fall of 2015. Cronbach's alpha was calculated to measure the internal consistency within each factor (Cronbach, 1951).

Ethics

The study, questionnaire, and consent forms were approved by the research ethics board of the Jewish General Hospital, Montreal, as well as by the ethics committee affiliated with each participating FMG. We obtained institutional authorisation from each regional health organisation where applicable.

Results

Questionnaire Development and Distribution

We sent the 83-item questionnaire (after the second round of validation; see online Appendix 1) to 42 FMGs taking part in the pilot phase of the QAP. Of these, 38 FMGs consented to participate in this study. Two FMGs withdrew from the QAP, and two others chose not to participate in the study. Overall, we sent 646 questionnaires with an estimated response rate of 68 per cent (based on the estimation of non-eligibility). The

Table 1: Self-reported demographics of the family physicians who returned a questionnaire (n = 369)

Demographic Characteristics	n	%	Valid %
Language spoken			
English	6	1.6	1.7
French	318	86.2	87.8
Bilingual	38	10.3	10.5
Missing	7	1.9	
Region			
Urban	229	62.1	64.3
Rural	127	34.4	35.7
Missing	13	3.5	
Sex		0.0	
Female	225	61.0	62.0
Male	138	37.4	38.0
Missing	6	1.6	33.3
7411331119	ŭ	Standard	Number of
	Mean	Deviation	Missing Values
Number of years of practice	18.6	12.7	7
Number of years at current clinic	15.0	11.6	11

demographics of physicians who returned a questionnaire are described in Table 1.

After a third round of validation (online Appendix 1), the questionnaire contained 64 items (12 items for demographics characteristics and 52 items related to KAP). Of the 52 items related to KAP, most (n = 47) were on a 4-point Likert scale (1, "disagree"; 2, "somewhat disagree"; 3, "somewhat agree"; and 4, "agree"). This 4-point scale, without a neutral category, was chosen to force users to form an opinion and minimise acquiescence bias (Allen & Seaman, 2007; Ray, 1990). Five items on attitudes towards the QAP were on a 10-point Likert scale (e.g., 1, "not at all beneficial" to 10, "very beneficial").

Construct Validation and Reliability

All 64 questionnaire items had a low rate of missing data (0% to 8%), except four items related to attitudes towards the QAP (18% to 32%). Sub-questions related to KAP (n = 16) and demographic questions (n = 12) were excluded from the EFA. The EFA was thus performed on 36 items. Items showed good discrimination across factors with moderate (> 0.40) to high (> 0.70) item-tofactor loading. Five items were eliminated due to poor loading. In total, 31 items were retained. Although seven factors had eigenvalues greater than 1, five factors explained 77 per cent of the variance, met the inflection point of the scree plot (see supplementary Appendix 2, available online), and had low residual correlations. Five factors were thus retained. We labelled Factor 1, "perceived competency and knowledge in dementia care" (11 items); Factor 2, "attitude towards the QAP"

Table 2: Inter-factor correlations for the five retained factors

Factors	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1	1.00	0.29	0.30	0.08	-0.16
Factor 2	0.29	1.00	0.24	0.14	0.08
Factor 3	0.30	0.24	1.00	0.17	0.09
Factor 4	0.08	0.14	0.17	1.00	0.22
Factor 5	-0.16	0.08	0.09	0.26	1.00

Note. Factor 1: Perceived competency and knowledge in dementia care; Factor 2: Attitudes towards Alzheimer Plan; Factor 3: Practices (cognitive evaluation); Factor 4: Attitudes towards dementia; Factor 5: Attitudes towards collaboration with nurses and other health care professionals.

(4 items); Factor 3, "practice" (cognitive evaluation; 7 items); Factor 4, "attitude towards dementia care" (6 items); and Factor 5, "attitude towards collaboration with nurses and other health care professionals" (3 items). We found correlation between factors to be weak, ranging from 8 per cent between factors 1 and 4 to 30.2 per cent between factors 1 and 3 (Table 2). All five factors were also found to be clinically relevant and meaningful by the participating FMGs and decision-makers from the Ministry of Health.

The internal consistency (Cronbach's alpha) of the items within each factor ranged from 0.66 to 0.91, showing moderate to high reliability between the items and factors (Table 3). A few items showed low inter-item correlations, especially in factors 3 and 4. No items were too highly correlated (see supplementary Appendix 3, available online).

Sensitivity Analysis

We performed sensitivity analyses to assess the impact of missing data on the robustness of the factor solution. Using the subset of data with no missing data on any item, we found the factor solution to be similar except for two items, "Improving patients' quality of life is possible" and "Improving caregivers' quality of life is possible", which loaded onto Factor 5, "Attitudes towards collaboration with nurses". We then conducted the EFA using the raw data on 27 of the 31 items after removing the four items with the highest proportion of missing data, which incidentally corresponded to the items within Factor 2. The 27 items loaded onto the same four factors as in the primary analysis. The final version of the KAP-Primary Dementia Care questionnaire is presented in supplementary Appendix 4, available online.

Discussion

Using high standards of instrument development and validation, we developed a questionnaire on the KAP of family physicians regarding dementia care and the

Table 3: Factor loading values for each of 31 items on respective factors, explained variance, and internal consistency of each factor

	Factor-Item Loading Values				
Items (n missing values)*	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Variance explained by each factor	4.69	3.04	2.42	1.81	1.80
Internal consistency of each factor (Cronbach's alpha)	0.88	0.91	0.74	0.66	0.78
Competent to diagnose dementia (missing = 1)	0.70				
Competent to elaborate a care plan (missing = 3)	0.70				
Competent to educate patients/family (missing = 3)	0.55				
Competent to disclose diagnosis (missing = 2)	0.60				
Competent to involve caregiver in diagnosis (missing = 3)	0.47				
Know diagnostic criteria (missing = 1)	0.54				
Know guidelines (missing = 8)	0.43				
Feel comfortable prescribing (missing = 3)	0.75				
Refer to specialist for diagnosis [INVERTED] (missing = 6)	0.77				
Refer to specialist for management [INVERTED] (missing = 8)	0.73				
Diagnosis is better made by specialists [INVERTED] (missing = 8)	0.62				
Understand vision and values of Alzheimer Plan (missing = 85)		0.82			
Alzheimer Plan offers beneficial changes (missing = 99)		0.87			
Sufficient coaching/training (missing = 67)		0.76			
Liberty to adapt practice (missing = 118)		0.84			
Cognitive testing when patients seem to have a short memory (missing = 5)			0.58		
Cognitive testing when patients lose or misplace things (missing = 14)			0.61		
Cognitive testing when patients have subjective complaints (missing = 1)			0.40		
Cognitive testing when the family has complaints (missing = 3)			0.46		
Cognitive testing when patients mix up their medications (missing = 4)			0.62		
Cognitive testing when patients repeat themselves (missing = 3)			0.71		
Cognitive testing when the family report behavior changes (missing = 1)			0.47		
Improving patients' quality of life is possible (missing = 1)				0.57	
Improving caregivers' quality of life is possible (missing = 3)				0.37	
Early diagnosis is harmful [INVERTED] (missing = 30)				0.55	
Family prefers early diagnosis (missing = 7)				0.52	
If no effective treatment, diagnosis isn't a priority [INVERTED] (missing = 4)				0.57	
In the presence of symptoms, early diagnosis is important (missing = 7)				0.50	
Collaboration with nurses and other health care professionals is important for diagnosis (missing = 2)					0.55
Collaboration with nurses and other health care professionals is important for developing care plans (missing = 4)					0.81
Collaboration with nurses and other health care professionals is important for case management (missing = 3)					0.80

Note.*Missing values were imputed using the expectation maximization algorithm. Factor 1: Perceived competency and knowledge in dementia care; Factor 2: Attitudes towards Alzheimer Plan; Factor 3: Practices (cognitive evaluation); Factor 4: Attitudes towards dementia; Factor 5: Attitudes towards collaboration with nurses and other health care professionals. Only loadings above 0.3 are displayed.

QAP, providing a tool to measure progress in the implementation of dementia strategies in primary care and their impact.

Our questionnaire contributes to the literature on KAP in family physicians regarding dementia care as it addresses elements of detection, diagnosis, and treatment through the perspectives of physicians' knowledge, attitudes, and practices. Our questionnaire expands on previous questionnaires measuring practices and attitudes towards dementia in family physicians (Pakzad et al., 2016). Furthermore, elements relating to the family physicians' perceived competency and knowledge, their attitudes towards their

collaboration with nurses, and the Alzheimer Plan were added in our questionnaire.

Prior questionnaires concerning family physicians' attitudes, knowledge, or practice on dementia have not successfully addressed all three themes throughout the care process (Bedard et al., 2014; Boustani et al., 2011; Doherty et al., 2015; Hillmer et al., 2006; Iracleous et al., 2010; Kaduszkiewicz et al., 2008; Milne et al., 2005; Pentzek et al., 2011; Russ et al., 2013). Our questionnaire is the first to measure the physicians' attitudes towards a dementia strategy. Determining attitudes regarding a dementia strategy is important because it is likely that such attitudes impact the success of any such strategy

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(Holt, Helfrich, Hall, & Weiner, 2010; Kaplan, Greenfield, & Ware Jr, 1989). This knowledge will enable decision-makers who are implementing dementia strategies in primary care to evaluate whether physicians understand the mission and values of the strategy and can effectively act on it.

The present study presents significant strengths. The validity of our questionnaire is supported by an extensive review of instruments, the use of an iterative process with a panel of experts as well as family physicians, and validation of our factor solution with key stakeholders. Our questionnaire was tested in a large sample of physicians and a wide range of practices, rural and urban, throughout the province. Socio-demographics characteristics of the sample (self-reported rural/urban practice, sex, and language ratio) suggest a good representation of the respondents to the general population of family physicians in Quebec. In our study, we had a higher proportion of female physicians than in Quebec physician population data from 2002 and 2005 (61% vs. 48%) (Coyle, Strumpf, Fiset-Laniel, Tousignant, & Roy, 2014). However, more recent Quebec population data shows rates closer to rates reported in our study (56%) (Scott's Medical Database, 2019). Although this finding is consistent with the fact that women seem to make up an increasingly larger proportion of the family physicians in Canada (Canadian Institute for Health Information, 2019), we cannot entirely rule out the existence of a response bias, whereby female physicians respond more often to surveys than do male physicians (Cull, O'Connor, Sharp, & Tang, 2005). We also found a higher proportion of family physicians working in both languages compared to the proportion of health professionals (10.3% vs. 4.4%) (Statistics Canada, 2013) and lower urban practices than what has been found in population data (Coyle et al., 2014). Our study sample also closely reflected the average number of years of practice (Coyle et al., 2014) and the proportion of French speakers in the Quebec population (Statistics Canada, 2013).

Most strikingly, the high response rate (68%) we obtained is superior to what has been reported in similar literature (27% to 63%). The high response rate may have resulted from the use of recognised strategies of questionnaire distribution and the fact that we ensured a close collaboration with the medical directors to facilitate distribution of the questionnaires (VanGeest, Johnson, & Welch, 2007). Sensitivity analyses confirmed the robustness of the factor solution. Finally, all but one factor included at least four items, which is recognised as a high standard (Fabrigar et al., 1999).

In terms of limitations, there is a possibility that the motivation of the FMGs to participate in the QAP may have consisted of a selection bias. Similarly, our sample represents around 8 per cent of family physicians

working in FMGs in Quebec may constitute a representation bias (Bergman, Dove, & Weinstock, 2017; College des Medicins Du Quebec, 2018). Another limitation is that one factor ("Attitudes towards collaboration with other health care professionals") included only three items. In addition, low inter-item correlations and moderate internal consistency in factors 3 and 4 should be considered in the interpretation and may merit further consideration. Finally, the validation of the questionnaire was done in the Quebec context only. Ideally, the research should be replicated in other provinces where dementia strategies have been developed and implemented.

Conclusion

This questionnaire offers a comprehensive, validated measure of family physicians' KAP regarding dementia care and strategies. This questionnaire could be used by researchers, managers, and decision-makers to assess the capacity of family physicians to detect, diagnose, treat, and manage patients with dementia. This questionnaire could also be used to monitor the progress of dementia strategies in primary health care and to measure its impact on family physicians' KAP.

Supplementary Material

To view supplementary material for this article, please visit https://doi.org/10.1017/S0714980820000069

References

- Ahmad, S., Orrell, M., Iliffe, S., & Gracie, A. (2010). GPs' attitudes, awareness, and practice regarding early diagnosis of dementia. *British Journal of General Practice*, 60(578), e360–e365.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50 (2), 179–211.
- Allen, I. E., & Seaman, C. A. (2007). Likert scales and data analyses. *Quality Progress*, 40(7), 64–65.
- Alzheimer Society of Canada. (2010). Rising tide: The impact of dementia on Canadian society. Retrieved from https://alzheimer.ca/en/suroit/Get-involved/Advocacy/Latest-info-stats/Rising-Tide
- Alzheimer's Disease International Publication Team. (2018). From plan to impact: Progress towards targets of the global action plan on dementia. Retrieved from https://www.alz.co.uk/adi/pdf/from-plan-to-impact-2018.pdf
- Aminzadeh, F., Molnar, F. J., Dalziel, W. B., & Ayotte, D. (2012). A review of barriers and enablers to diagnosis and management of persons with dementia in primary care.

- *Canadian Geriatrics Journal*, **15(3)**, **85–94**. https://doi.org/10.5770/cgj.15.42.
- Amjad, H., Carmichael, D., Austin, A. M., Chang, C.-H., & Bynum, J. P. (2016). Continuity of care and health care utilization in older adults with dementia in fee-for-service Medicare. *JAMA Internal Medicine*, 176(9), 1371–1378.
- Banjo, O. C., Nadler, R., & Reiner, P. B. (2010). Physician attitudes towards pharmacological cognitive enhancement: Safety concerns are paramount. *PLoS One*, 5(12), e14322.
- Bedard, M., Gibbons, C., Lambert-Belanger, A., & Riendeau, J. (2014). Development of a tool to investigate caregiving issues from the perspective of family physicians and discussion of preliminary results. *Primary Health Care Research & Development*, 15(2), 220–226.
- Bergman, H., Arcand, M., Bureau, C., Chertkow, H., Ducharme, F., Joanette, Y., ..., Voyer, P. (2009). Report of the committee of experts for the development of an action plan on Alzheimer's disease Meeting the challenge of Alzheimer's and related diseases: A person-centered vision, humanism, and excellence [in French]. Retrieved from http://publications.msss.gouv.qc.ca/msss/document-000869/
- Bergman, H., Dove, M., & Weinstock, D. (2017). Primary care in Quebec at the crossroads. *McGill Journal of Medicine*, 15 (16), 2–5.
- Boustani, M., Sachs, G., & Callahan, C. M. (2007). Can primary care meet the biopsychosocial needs of older adults with dementia? *Journal of General Internal Medicine*, 22(11), 1625–1627. https://doi.org/10.1007/s11606-007-0386-y.
- Boustani, M. A., Justiss, M. D., Frame, A., Austrom, M. G., Perkins, A. J., Cai, X., ..., Hendrie, H. C. (2011). Caregiver and noncaregiver attitudes toward dementia screening. *Journal of the American Geriatrics Society*, 59(4), 681–686.
- Canadian Institute for Health Information. (2019). *Physicians in Canada*, 2018. Retrieved from https://www.cihi.ca/sites/default/files/document/physicians-in-canada-2018.pdf
- Chertkow, H., Hogan, D., Black, S., Feldman, H., Gauthier, S., & Rockwood, K. ... Stuchlik, A. (2018). An action plan to face the challenge of dementia: International Statement on dementia from IAP for health. *Journal of Prevention of Alzheimer's Disease*, 5(3), 207–212. https://doi.org/10.14283/jpad.2018.27.
- College des Medicins Du Quebec. (2018). Bilan annuel du College des medicins du Quebec sur les effectifs medicaux [Annual review of the Quebec College of medical officers on medical staffing]. Retrieved from http://www.cmq.org/nouvelles-pdf/n-1-2018-01-22-fr-bilan-annuel-effectifs-medicaux-2017.pdf?t= 1564673906439
- Coyle, N., Strumpf, E., Fiset-Laniel, J., Tousignant, P., & Roy, Y. (2014). Characteristics of physicians and patients who join team-based primary care practices: Evidence from Quebec's Family Medicine Groups.

- *Health Policy*, 116(2), 264–272. https://doi.org/10.1016/j.healthpol.2014.02.010.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297–334.
- Cull, W. L., O'Connor, K. G., Sharp, S., & Tang, S.-F. S. (2005). Response rates and response bias for 50 surveys of pediatricians. *Health Services Research*, 40(1), 213–226. https://doi.org/10.1111/j.1475-6773.2005.00350.x.
- De Pretto, L., Acreman, S., Ashfold, M. J., Mohankumar, S. K., & Campos-Arceiz, A. (2015). The link between knowledge, attitudes and practices in relation to atmospheric haze pollution in Peninsular Malaysia. *PLoS One*, 10(12), e0143655.
- Dempster, A. P., Laird, N. M., & Rubin, D. B. (1977). Maximum likelihood from incomplete data via the EM algorithm. *Journal of the Royal Statistical Society: Series B (Statistical Methodology)*, 39(1), 1–38.
- Diop, M., Fiset-Laniel, J., Provost, S., Tousignant, P., Borges Da Silva, R., Ouimet, M. J., ..., Strumpf, E. (2017). Does enrollment in multidisciplinary team-based primary care practice improve adherence to guideline-recommended processes of care? Quebec's Family Medicine Groups, 2002–2010. *Health Policy*, 121(4), 378–388. https://doi.org/10.1016/j.healthpol.2017.02.001
- Doherty, U., Hawke, A. L., Kearns, J., & Kelly, M. (2015). Fitness to drive in cognitive impairment—A quantitative study of GPs' experience. *Irish Medical Journal*, 108(4), 112–114.
- Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, 4(3), 272.
- Fonseca, M. J., Costa, P., Lencastre, L., & Tavares, F. (2013). A statistical approach to quantitative data validation focused on the assessment of students' perceptions about biotechnology. *SpringerPlus*, 2, Article 496. https://doi.org/10.1186/2193-1801-2-496
- Gaboreau, Y., Imbert, P., Jacquet, J.-P., Paumier, F., Couturier, P., & Gavazzi, G. (2014). Factors affecting dementia screening by general practitioners in community-dwelling elderly populations: A large cross-sectional study in 2 areas of France. *Alzheimer Disease and Associated Disorders*, 28(1), 58–64.
- Goodwin, L. D. (1999). The role of factor analysis in the estimation of construct validity. *Measurement in Physical Education and Exercise Science*, 3(2), 85–100.
- Government of Alberta & Alberta Health Continuing Care. (2017). *Alberta dementia strategy and action plan*. Retrieved from https://open.alberta.ca/publications/9781460136898
- Government of British Columbia & Ministry of Health. (2012). The provincial dementia action plan for British Columbia: Priorities and actions for health system and service redesign. Retrieved from http://

- www.health.gov.bc.ca/library/publications/year/ 2012/dementia-action-plan.pdf
- Government of British Columbia, & Ministry of Health. (2016). Provincial guide to dementia care in British Columbia: Achievements and next steps. Retrieved from http://www.health.gov.bc.ca/library/publications/ year/2016/bc-dementia-care-guide.pdf
- Government of Canada. (2017). National Strategy for Alzheimer's Disease and Other Dementias Act. Retrieved from https://laws-lois.justice.gc.ca/eng/ annualstatutes/2017_19/FullText.html
- Government of Manitoba. (2014). Manitoba's framework for Alzheimer's disease and other dementias. Retrieved https://www.gov.mb.ca/health/documents/ alzframework.pdf
- Government of Newfoundland and Labrador, Department of Health and Community Services, & Alzheimer Society of Newfoundland and Labrador. (2004). The provincial strategy for Alzheimer disease and other dementias: A action! Retrieved from https:// www.health.gov.nl.ca/health/publications/alzheimer_ plan_of_action.pdf
- Government of Nova Scotia, & Department of Health and Wellness. (2015). Towards understanding: A dementia strategy for Nova Scotia. Retrieved from https:// novascotia.ca/dhw/dementia/
- Government of Ontario, Ministry of Health and Long-Term Care, & Ministry of Education (Early Years and Child Care). (2016). Developing Ontario's dementia strategy: A discussion paper. Retrieved from https:// www.ontario.ca/page/developing-ontarios-dementiastrategy-discussion-paper
- Helfrich, C. D., Weiner, B. J., McKinney, M. M., & Minasian, L. (2007). Determinants of implementation effectiveness adapting a framework for complex innovations. Medical Care Research and Review, 64(3), 279-303.
- Hillmer, M., Krahn, M., Hillmer, M., Pariser, P., & Naglie, G. (2006). Prescribing patterns for Alzheimer disease: Survey of Canadian family physicians. Canadian Family Physician, 52(2), 208-209.
- Holt, D. T., Helfrich, C. D., Hall, C. G., & Weiner, B. J. (2010). Are you ready? How health professionals can comprehensively conceptualize readiness for change. Journal of General Internal Medicine, 25(1), 50-55.
- Iracleous, P., Nie, J. X., Tracy, C. S., Moineddin, R., Ismail, Z., Shulman, K. I., & Upshur, R. E. G. (2010). Primary care physicians' attitudes towards cognitive screening: Findings from a national postal survey. International Journal of Geriatric Psychiatry, 25(1), 23–29.
- Kaduszkiewicz, H., Wiese, B., & van den Bussche, H. (2008). Self-reported competence, attitude and approach of physicians towards patients with dementia in ambulatory care: Results of a postal survey. BMC Health

- Services Research, 8(1), 1. https://doi.org/10.1186/1472-
- Kaplan, S. H., Greenfield, S., & Ware, J. E., Jr. (1989). Assessing the effects of physician-patient interactions on the outcomes of chronic disease. Medical Care, 27(3), S110-S127.
- Kline, P. (2014). An easy guide to factor analysis. London, ENG: Routledge. https://doi.org/10.4324/9781315788135.
- Lee, L., Hillier, L. M., & Weston, W. W. (2014, Feb.). Effect of a 3-hour workshop on self-perceived abilities in and enjoyment of dementia care. Paper presented at the 2014 Family Medicine Forum, Quebec City, Quebec.
- Lemire, F. (2017). First contact: What does it mean for family practice in 2017? Canadian Family Physician, 63 (3), 256.
- Meeuwsen, E. J., Melis, R. J., Van Der Aa, G. C., Golüke-Willemse, G. A., De Leest, B. J., Van Raak, F. H., ..., Visser, M. C. (2012). Effectiveness of dementia followup care by memory clinics or general practitioners: Randomised controlled trial. BMJ, 344, e3086. https:// doi.org/10.1136/bmj.e3086
- Millard, F., & Baune, B. (2009). Dementia-Who cares? A comparison of community needs and primary care services. Australian Family Physician, 38(8), 642–649.
- Milne, A. J., Hamilton-West, K., & Hatzidimitriadou, E. (2005). GP attitudes to early diagnosis of dementia: Evidence of improvement. Aging & Mental Health, 9(5), 449-455.
- Moore, A., Patterson, C., Lee, L., Vedel, I., & Bergman, H. (2014). Fourth Canadian Consensus Conference on the diagnosis and treatment of dementia: Recommendations for family physicians. Canadian Family Physician, 60(5), 433-438.
- Pakzad, S., Bourque, P., Gallant, L., Donovan, D., & Sepehry, A. A. (2016). Validation of the family physicians' perception of dementia care questionnaire: A pilot study. Journal of Geriatric Medicine and Gerontology, 2(2). doi:10.23937/2469-5858/1510016.
- Parmar, J., Dobbs, B., McKay, R., Kirwan, C., Cooper, T., Marin, A., & Gupta, N. (2014). Diagnosis and management of dementia in primary care: Exploratory study. Canadian Family Physician, 60(5), 457-465.
- Pentzek, M., Fuchs, A., Abholz, H. H., & Wollny, A. (2011). Awareness of local dementia services among general practitioners with academic affiliation. Aging Clinical and Experimental Research, 23(3), 241-243. doi:10. 3275/7105.
- Provincial Advisory Committee of Older Persons and the Alzheimer Society of Saskatchewan. (2004). A strategy for Alzheimer disease and related dementias in Saskatchewan. Retrieved from World Health Organization website: https://www.mindbank.info/item/5388

- Ray, J. J. (1990). Acquiescence and problems with forced-choice scales. *The Journal of Social Psychology*, 130(3), 397–399.
- Russ, T. C., Calvert, L., & Morling, J. R. (2013). Attitudes to shared care for patients with dementia: A survey of general practitioners. *Dementia*, 12(5), 606–618.
- Scott's Medical Database. (2019). SMDB data table release, 2018. Retrieved from https://www.cihi.ca/en/physicians-in-canada
- Statistics Canada. (2013). 2011 National Household Survey:
 Data tables. Statistics Canada Catalogue no.
 99-012-X2011028. Retrieved from https://
 www12.statcan.gc.ca/nhs-enm/2011/dp-pd/dt-td/Apeng.cfm?LANG=E&APATH=3&DETAIL=0&DIM=0&
 FL=A&FREE=0&GC=0&GID=0&GK=0&GRP=0&PID=
 105614&PRID=0&PTYPE=105277&S=0&SHOWALL=
 1&SUB=0&Temporal=2013&THEME=96&VID=0&
 VNAMEE=&VNAMEF=
- Strumpf, E., Ammi, M., Diop, M., Fiset-Laniel, J., & Tousignant, P. (2017). The impact of team-based primary care on health care services utilization and costs: Quebec's family medicine groups. *Journal of Health Economics*, 55, 76–94. https://doi.org/10.1016/j.jhealeco.2017.06.009.

- Strumpf, E., Levesque, J. F., Coyle, N., Hutchison, B., Barnes, M., & Wedel, R. J. (2012). Innovative and diverse strategies toward primary health care reform: Lessons learned from the Canadian experience. *Journal of the American Board of Family Medicine*, 25(Suppl 1), S27–S33. https://doi.org/10.3122/jabfm.2012.02.110215.
- VanGeest, J. B., Johnson, T. P., & Welch, V. L. (2007). Methodologies for improving response rates in surveys of physicians a systematic review. *Evaluation and the Health Professions*, 30(4), 303–321.
- Vedel, I., Sourial, N., Arsenault-Lapierre, G., Godard-Sebillotte, C., & Bergman, H. (2019). Impact of the Quebec Alzheimer Plan on the detection and management of Alzheimer disease and other neurocognitive disorders in primary health care: A retrospective study. *CMAJ Open*, 7(2), E391–E398.
- Willis, G. B. (2004). *Cognitive interviewing: A tool for improving questionnaire design*. Thousand Oaks, CA: Sage.
- World Health Organization. (2012). Dementia: A public health priority. Retrieved from https://extranet.who.int/agefriendlyworld/wp-content/uploads/2014/06/WHO-Dementia-English.pdf