

The Dunedin Dementia Risk Awareness Project: a convenience sample of general practitioners

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ABSTRACT

AIMS: Recent recommendations of US and UK governmental and academic agencies suggest that up to 35% of dementia cases are preventable. We aimed to appraise general practitioners' (GPs) awareness of risk and protective factors associated with dementia and their intentions to act within the context of the Health Beliefs Model.

METHODS: We canvassed degree of dementia awareness, using the modified Lifestyle for Brain Health (LIBRA) scale among a convenience sample of local GPs.

RESULTS: Thirty-five GPs, mean age 56.7 ± 6.8 years (range: 43–72) participated. There were 19 women and 16 men, all New Zealand European. Genetics was the most commonly cited risk for dementia and exercise the most commonly cited protective factor. More than 80% of participants correctly identified 8/12 LIBRA factors. Factors not identified were: renal dysfunction, obesity, Mediterranean diet and high cognitive activity. The majority of participants felt they were at risk of suffering from dementia, that lifestyle changes will help reduce their risk and wished to start these changes soon.

CONCLUSIONS: GPs are knowledgeable about dementia risk and protective factors. They reported optimism in their ability to modify their own risk factors through lifestyle interventions. This places GPs in a unique position to help disseminate this knowledge to their clients.

Dementia is a global public health priority.¹ The total number of people with dementia is predicted to increase due to an aging population and so will associated care costs.^{2,3} Universal, selective and indicated preventive interventions are a mandated goal of primary prevention.^{4,5} Interventions to prevent mental ill-health aim to counteract risk factors and reinforce protective factors along the lifespan in order to disrupt those processes that contribute to human mental dysfunction.

The risk factors that more narrowly focus on the older adults and the elderly include, among others: access to alcohol, isolation, lack of education, poor nutrition and poverty. Protective factors in the elderly include social support and community networks.^{6,7} A recent review suggested that seven major modifiable risk factors (diabetes mellitus, midlife hypertension,

midlife obesity, smoking, depression, and cognitive and physical inactivity) account for about 50% of all cases of Alzheimer's disease (AD) dementia.⁸ This year, two important publications have "revolutionised" the way we think about preventing dementia. After a very pessimistic and negative view on dementia prevention published in 2010, the National Academies for Science Engineering and Medicine of the USA have changed their position. The recommendations are now as follows: "The systematic review identified no specific interventions that are supported by sufficient evidence to justify mounting an assertive public health campaign to encourage people to adopt them for the purpose of preventing cognitive decline and dementia. The systematic review did, however, find some degree of support for the benefit of three classes of intervention: cognitive training, blood pressure

management in people with hypertension and increased physical activity”.⁹ Closely following this important review undertaken by the NIH, the *Lancet* commissioned report on dementia prevention, intervention and care was published.¹⁰ In this report, the emphasis on prevention is even more definite: “Be ambitious about prevention. We recommend active treatment of hypertension in middle aged (45–65 years) and older people (aged older than 65 years) without dementia to reduce dementia incidence. Interventions for other risk factors, including more childhood education, exercise, maintaining social engagement, reducing smoking, and management of hearing loss, depression, diabetes and obesity might have the potential to delay or prevent a third of dementia cases.”

Several studies developed prediction models to calculate individual dementia risk. However, a limitation inherent in most models is that these risk indices comprise both modifiable and non-modifiable factors such as age, sex and apolipoprotein E genotype. Although including the latter might increase predictive accuracy, such factors are not amenable to change, cannot be targeted in routine care and do not indicate individual ‘room for improvement’. Recently, Schiepers and colleagues (2018) reported on a new prediction model for dementia that differs from previous risk indices by focusing exclusively on modifiable risk factors, increasing its potential application in the development of tailored interventions and primary prevention.¹¹ This model (the Lifestyle for Brain Health [LIBRA] scale) was evaluated in a large population-based study containing extensive information about risk and protective factors for dementia and cognitive decline.¹¹

A report issued by the CDC and the Alzheimer’s Association recommended with high priority to “determine how diverse audiences think about cognitive health and its association with lifestyle factors.”¹² In the present study we report results of a convenience sample of GPs who were evaluated as to their awareness and perceptions of brain health and self-efficacy in undertaking lifestyle changes to improve brain health.

Methods

The method we employed in the present study was based on the American Institute for Cancer Research (AICR) commissioned Cancer Risk Awareness Surveys aimed at gauging Americans’ awareness of various lifestyle-related cancer risk factors.¹³ Briefly, the AICR Cancer Risk Awareness Survey has been conducted periodically since 2001. A random sample of Americans aged 18 and older is telephoned on behalf of AICR by SSRS (www.ssrs.com). The survey provides important insights and trends into how Americans are able to separate clearly established cancer risks from factors about which there is no scientific consensus, but which many of the general public believe cause cancer. Respondents to the AICR survey are read the following question: “Which of the following do you believe has a significant effect on whether or not the average person develops cancer?” The risk factors are randomly ordered, and read to respondents one at a time; to each, respondents answer ‘Yes’, ‘No’ or ‘Don’t Know’.

We have modified the LIBRA scale (see Appendix 1) to conform to the AICR survey format, and added open-ended questions as to dementia risk and protective factors. Finally, we use five ‘Yes/No’ questions to gauge participants’ health beliefs based on the health beliefs scale.¹⁴

Participants

This sample was selected for convenience. Prior to an academic update for GPs the questionnaire was distributed. All 35 attendees consented to participate. The meeting was part of a series of annual meetings for GPs that are recognised for Continuous Medical Education (CME) accreditation. The subject of the meeting was ‘brain health’. GP participants all completed a hard copy survey at the CME meeting.

Procedures

Participants were asked a series of identical questions about dementia risk awareness, beginning with open-ended questions asking about their unprompted (recall) knowledge of dementia risk factors overall; “What do you believe are the three most important risk factors for dementia?”

and “What do you believe are the three most important protective factors for dementia?”. Respondents were then prompted specifically about the modified LIBRA risk factors; “Which of the following do you believe has a significant effect on whether or not the average person develops dementia?” Finally, five questions assessing the participants Health Belief Model were asked.

This study used unprompted recall and prompted recognition to explore different levels of awareness. Unprompted recall retrieves knowledge that is readily accessible, and likely to be more influential in day-to-day behaviour choices than recognition, which requires a prompt to elicit the information.

See Appendix 2 for the pilot survey questionnaire.

Analyses

Respondent characteristics are described using appropriate summary statistics and the proportions affirming each belief will be presented.

Compliance with Ethical Standards

Ethical approval for the proposed survey was obtained from the University of Otago Ethics Committee and the Department of Psychological Medicine Ethics Committee.

The Human Ethics Committee’s reference number for this study is D17/231.

Consent was given orally following detailed explanation of the study and prior to endorsing the survey questionnaire.

Results

Thirty-five GPs, mean age 56.7 ± 6.7 years (range: 43–72) participated in the present survey. There were 19 women and 16 men; all were New Zealand Europeans.

Their answers to the survey questions were as follows:

Risk and protective factors

Open ended

“What do you believe are the three factors that will **increase** the chances of a person experiencing memory problems in older age?”

- Genetics was most commonly emphasised followed by smoking and sedentary lifestyle.

“What do you believe are the three factors that will **reduce** the chances of a person experiencing memory problems in older age?”

- Exercise was most commonly emphasised followed by dietary changes and cognitive training.

Prompted

See Figure 1 for a graphic representation of the answers to the prompted factors.

In relation to established risk and protective factors as reflected in the LIBRA score,¹¹ more than 80% of participants correctly identified 8/12 LIBRA factors. Factors not identified were: renal dysfunction, obesity, Mediterranean diet and high cognitive activity.

Health beliefs

The majority of participants felt they were at risk of suffering from dementia, that this will change their lives significantly, that lifestyle changes will help reduce their risk, that they can make the necessary changes and wish to start these changes soon.

The answers to the questions reflecting health beliefs and readiness for change were as follows:

- “I am at risk to suffer from dementia in the future” Yes: 29, No: 6.
- “If I were to suffer from dementia my whole life would change” Yes: 31, No: 4.
- “Changing lifestyle behaviours (for example: diet, smoking, exercise) will reduce the risk of dementia” Yes: 34, No: 1.
- “Changing lifestyle will be too difficult” Yes: 5, No: 30.
- “I feel confident that I could make lifestyle changes to help prevent dementia” Yes: 28, No: 7.
- “I want to start lifestyle changes soon” Yes: 29, No: 6.

Discussion

In the present study, the majority of GPs correctly endorsed eight of the 12 LIBRA factors. Risk and protective factors not identified by the majority of GPs were obesity, renal dysfunction, the Mediterranean diet and high cognitive activity respectively.

This may be a reflection of cultural bias (the Mediterranean diet) or the fact that diet and cognitive activity are conceptualised as areas related to allied health professionals interests and expertise and not to the 'core' practice of general medicine. Obesity stands out as a factor that may need to be emphasised for GPs as an important risk for dementia. The conceptualisation of dementia as highly 'genetic' does not reflect the current scientific evidence and again may be an area in need of further education for GPs. Finally, although pessimism was reflected in the majority of GPs reporting they feel they are at risk of suffering from dementia, as a group they were optimistic, confident and ready to start lifestyle changes to decrease risk of dementia.

Health promotion is an important element of national health strategy, however attitudes among GPs are ambivalent. Many GPs state they lack the skills needed to deliver effective health promotion.¹⁵ In a survey among UK general practices attitudes to health promotion were generally positive, but lack of training in lifestyle counselling was perceived to be a problem. Beliefs in the effectiveness of lifestyle counselling were associated with positive attitudes towards health promotion and better confidence in training. This is relevant to our findings as the majority of GPs reported feeling confident they can make the appropriate lifestyle changes for themselves. The attitudes of health professionals are crucial to the implementation of prevention strategies.¹⁶ However, as no association between personal health behaviour and attitudes towards health promotion were observed¹⁵ we need to be cautious in assuming the positive stance on health behaviours reported by GPs in the present study will indeed translate into prevention interventions for older adults.

Studies that have examined public knowledge about AD were mostly based on specific at-risk populations. This and

other limitations make it difficult to assess the representativeness of reported results. The present study addresses this challenge by examining knowledge and beliefs about dementia risk and protective factors among a convenience sample of GPs. The support and advancement of preventive measures by GPs can make a significant difference on patients' decisions to engage in lifestyle changes.¹⁷ Studies have identified patients' regular GPs as a strong influence especially given the complexity involved in making decisions about preventive interventions. GPs should be aware of their major influence on patients and regularly discuss health-related issues with older adults and their carers.¹⁸

The current study has several limitations. It is not a representative sample of GPs in New Zealand. However, all GPs are required to participate in CME and there is no reason to believe that the GPs attending this event would have more or less knowledge about risk and protective factors for dementia.

The growing attention to cognitive health promotion among older adults emphasises the importance of scrutinising public understanding of risk and protective factors for dementia. An increased understanding of public views about dementia is a priority. Health beliefs have long been recognised as an important factor in risk self-management. Perceived threat of disease—personal susceptibility—is associated with willingness to seek out preventive options whereas beliefs about causes influence self-management.¹ A large scale effort to reduce the number of people developing dementia was piloted by several NGOs in the UK as part of the NHS Health Check programme—a free health check-up for adults in England aged 40–74, designed to reduce their risk of stroke, kidney disease, heart disease, type 2 diabetes or dementia. Seventy-five percent of people participating in the NHS programme said advice on dementia risk reduction would encourage them to adopt a healthier lifestyle while 80 percent said the advice would have some impact on their behaviour.

The perception of old age differs in different societies and cultures: in Western societies, the loss of youth, multiple losses of functions and independence resulting in disability produce a social stigma.

Dementia is common among the elderly, regardless of ethnic background. In countries led by Western philosophical thought, the cognitive domain has been privileged over other mental domains.²⁰ Studies are currently dominated by biomedical models that consider dementing disorders solely as pathological entities caused by neuronal and neurotransmitters loss, and focus on the individual without regard to sociocultural context. The experience of dementia is not universal, but is profoundly shaped by the culture in which a person lives. Sociocultural conceptualisation of the symptoms of dementing diseases remains obscure among both patients and healthcare providers. The relevance of loneliness, exercise, nutrition, depression and a more holistic bio-psycho-social conceptualisation of dementia is

called for. There is an urgent need to expand the conceptualisation of dementia beyond a genetic medical model GPs expressed in the present study.

In conclusion, prevention is viewed as a key issue for general practice, yet there is a lack of evidence regarding general practitioners' interventions in both middle-aged and elderly people. GPs should design and implement prevention services and programmes to promote healthy and active ageing. Empowering people to become fit and eat healthier is crucial if we are to reduce the number of people developing dementia.²¹ GPs are uniquely placed to advance these messages as clearly demonstrated by their enthusiasm about changing their own lifestyle captured in the present study.

Appendix 1

LIBRA score

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Table 1: Algorithm for calculating individual Lifestyle for Brain Health (LIBRA) score.^a

Modifiable risk factor	Relative risk (RR)	Ln (RR)/beta weight	Score	Available in MAAS
Low/moderate alcohol consumption	0.74	-0.30 (reference)	-1.0	+
Coronary heart disease	1.36	0.31	+1.0	+
Physical inactivity	1.39	0.33	+1.1	+
Renal dysfunction	1.39	0.33	+1.1	+
Diabetes	1.47	0.39	+1.3	+
High cholesterol	1.54	0.43	+1.4	+
Smoking	1.59	0.46	+1.5	+
Obesity	1.60	0.47	+1.6	+
Hypertension	1.61	0.48	+1.6	+
Mediterranean diet	0.60	0.51	+1.7	-
Depression	1.85	0.62	+2.1	+
High cognitive activity	0.38	-0.97	-3.2	+
Low unsaturated fat intake ^b	-	-	-	-

Appendix 2

The Dunedin Dementia Risk Awareness Survey

Age:

Gender:

Ethnicity:

Education:

What do you believe are the three most important risk factors for dementia?

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-
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What do you believe are the three most important protective factors for dementia?

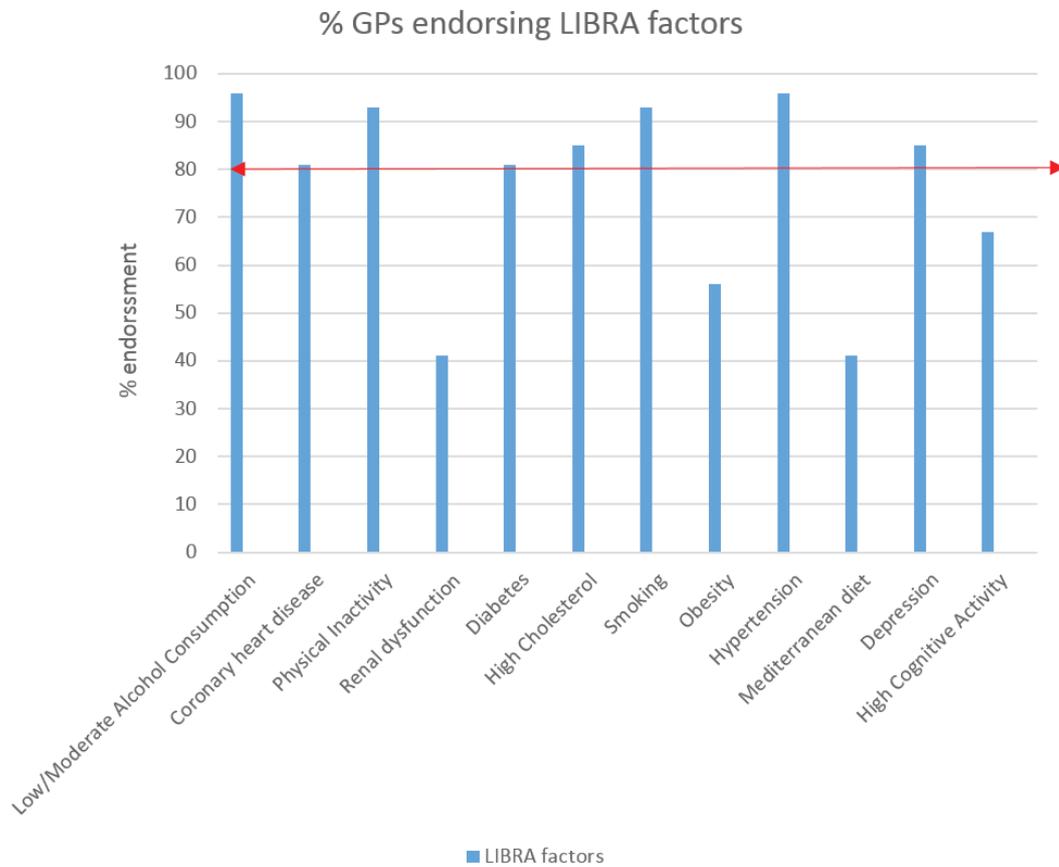
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Which of the following do you believe has a significant effect on whether or not the average person develops dementia?

- Low/moderate alcohol consumption
- Coronary heart disease
- Oral hygiene
- Physical inactivity
- Renal dysfunction
- Diabetes
- High cholesterol
- Curcumin
- Smoking
- Obesity
- Hypertension
- Mediterranean diet
- Depression
- Prescription drugs
- High cognitive activity
- Low unsaturated fat intake

Please answer 'Yes/No' for the following statements:

- "I am more than likely than the average person to suffer from dementia in the future"
- "If I were to suffer from dementia my whole life would change"
- "Changing lifestyle behaviours will reduce the risk of dementia"
- "Taking preventive measures will be too resource intensive"
- "I know how to initiate dementia prevention"
- "I want to start dementia prevention early"

Figure 1: % GPs endorsing LIBRA factors.**Competing interests:**

Nil.

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