Preventive Medicine Reports 2 (2015) 498–504

Contents lists available at ScienceDirect

Preventive Medicine Reports

journal homepage: http://ees.elsevier.com/pmedr

An Australian survey of cognitive health beliefs, intentions, and behaviours through the adult life course

Diane E. Hosking, Kerry A. Sargent-Cox, Kaarin J. Anstey *

Centre for Research on Ageing, Health and Wellbeing and the Centre for Excellence in Population Ageing Research, The Australian National University, Canberra, ACT, Australia

ARTICLE INFO

Available online 12 June 2015

Keywords:
Cognition
Preventive medicine
Surveys
Beliefs
Behaviour
Adults

ABSTRACT

Objective. Information is required regarding cognitive health beliefs and behaviours from across the life in order to inform the design of interventions to optimise cognitive health and reduce the risk of cognitive impairment.

Methods. A survey of Australian adults aged 20–89 was administered via Computer Assisted Telephone Interviewing (CATI) software to respondents recruited by random digit dialling (N = 900). Socio-demographic and self-reported health information was collected to investigate associations with cognitive health responses.

Results. Alcohol abuse was nominated by the highest proportion of respondents (34.3%) as detrimental for brain health. Fewer than 5% nominated elevated cholesterol, blood pressure, obesity, poor education, or ageing. The most frequently endorsed protective activity was socialising (70%). Socio-demographic factors predicted responses. Age-group differences were apparent in the proportions nominating alcohol ($X^2 = 24.2$; $p < .001$), drugs ($X^2 = 56.8$; $p < .001$), smoking ($X^2 = 13.1$; $p = .001$), nutrition ($X^2 = 20.4$; $p < .001$), and mental activity ($X^2 = 12.8$; $p = .002$) as relevant to brain health. Activities undertaken for cognitive benefit also differed by age. Across all ages the perceived benefit of activities was not supported by intentions to undertake activities.

Conclusions. Interventions are needed to inform and motivate people across the life-course to undertake behaviours specifically to optimise their cognitive health.

Introduction

Cognitive health can be viewed along a continuum from optimal functioning to mild cognitive impairment to severe dementia (Centers for Disease Control and Prevention, 2007). Cognitive trajectories throughout adulthood are determined by genetic and early-life influences that interact with life course environmental exposures and behavioural choices to enhance brain functioning or to cause neuropathological change (Hertzog et al., 2008). Educational attainment, cognitive and social engagement, dietary factors, drug and alcohol use, physical activity levels, mental health, and cardiovascular risk (Beydoun et al., 2014; Solomon et al., 2014) contribute to the complex balance between the accumulation of brain reserve and the burden of ageing and brain pathology (Anstey, 2014; Stern, 2002).

Over the last decade, governments and Alzheimer's International agencies have implemented public health campaigns targeting these modifiable lifestyle factors that impact upon brain health and cognition (Centers for Disease Control and Prevention, 2007; Laditka et al., 2012; World Health Organisation, 2012). In Australia, the national 'Mind Your Mind' dementia risk prevention programme was one of the first initiatives to place dementia prevention in the context of maintaining overall health and wellbeing (Connor, 2008). This programme was supported in 2011 by the launch of a smart phone application which aimed to increase awareness of modifiable dementia risk factors, provide information linking lifestyle choices to brain health, and promote behavioural change (Alzheimer's Australia, 2012).

Acknowledging the lifestyle determinants of dementia risk constitutes a vital contribution to reducing the future prevalence of the disease (Farrow, 2010) but a complimentary approach is the promotion of knowledge and behaviour that potentially optimises cognitive health at every life-stage (Anstey, 2014). Cognitive health contributes to a society's mental capital; that is, the extent to which individuals are able to reach their cognitive potential in order to contribute fully to society and experience a high quality of life (Beddington et al., 2008). The context for the promotion and maintenance of cognitive health therefore extends beyond addressing the challenge of population ageing to a broader focus on optimising cognitive functioning across the whole of adulthood (Anstey, 2014).

A number of surveys have been conducted across the United States (Anderson et al., 2009; Laditka et al., 2012) the United Kingdom (McParland et al., 2012; U.K. Health Forum, 2014) and Australia (Low

* Corresponding author at: The Centre for Research on Ageing, Health and Wellbeing, Florey Building 54, Mills Road, Acton, The Australian National University, Canberra, ACT 0200, Australia. Fax: +61 2 6125 1558.
E-mail address: kaarin.anstey@anu.edu.au (K.J. Anstey).

http://dx.doi.org/10.1016/j.pmedr.2015.06.008

and Anstey, 2007; Smith et al., 2014) to assess the public's knowledge of the modifiable determinants of cognitive health and dementia risk. Generally, these surveys have been undertaken in the context of developing public health strategies to prevent cognitive decline in older age. To date, however, we are aware of no surveys that have assessed current or intended behaviours undertaken by adults of all ages specifically for potential cognitive benefit. Such information is relevant for the design of interventions to optimise cognitive health across the lifespan.

Methods and material

Approval was obtained for this study from the Australian National University Human Research Ethics Committee and respondents gave informed verbal consent at the commencement of the telephone interview. The Survey of Cognitive Health Beliefs, Behaviours, and Intentions was a telephone survey designed by the authors (KJ, KS-C) based on information from reviews and the wider literature. The survey was piloted on a convenience sample of 30 people prior to data collection in 2013.

Participants

An Australia-wide sample was recruited through the polling company Roy Morgan Research. Eligibility included speaking English and being 20 to 89 years. Loose quotas were set to obtain a geographically diverse sample and approximately even numbers of respondents in each age decade. Of the 11,104 telephone calls accepted, there were 2492 screened out due to ineligibility or full quotas and 7712 who refused to take part, leaving a total sample of 900.

The survey

The survey took approximately 25 min to complete and was administered using Computer Assisted Telephone Interviewing (CATI) software. The cognitive health section of the survey consisted of a total of 24 items and assessed demographic information (9 questions), self-report health and health behaviour information (3 questions), social interaction (2 questions), frequency of worry for brain health or cognitive function (once a week, less than once a week, never), whether brain health and cognitive function were components of general health (yes or no), exposure to dementia via friend or family member with the disease (yes or no) and the factors respondents believed were adverse for brain health (free response).

Respondents were asked whether they participated (yes or no) in the following behaviours specifically for cognitive health benefit: physical activity, continuing education, staying hydrated, playing Sudoku, doing crosswords, eating vegetables, eating fish, limiting sugar intake, socialising, quitting or not smoking, reducing stress, drinking wine at least once a week, and undertaking online memory training activities. For any activity undertaken, respondents reported its frequency, the motivation for starting, and the perceived benefit to cognition. Respondents not undertaking the behaviour were asked "Do you think it would be helpful for cognitive health" and "Are you planning to start — if yes or maybe, at what age?"

Statistical analyses

The seven age groups were collapsed into three categories for analyses: young (20–44 years), middle-aged (45–64 years) and older adults (65 + years). BMI was computed from self-reported height and weight and coded into disease risk categories according to the WHO guidelines. (World Health Organisation, 2000) Self-reported hypertension, high cholesterol, and smoking status were combined into a vascular risk variable coded as 0 for no vascular risk factors or 1 indicating one or more vascular risk factors.

Brain health worry was dichotomised as either 'never' worrying about brain health (coded as 0) or 'sometimes' worrying about brain health (coded as 1). Cognitive health behaviours were dichotomised as either doing the behaviour for cognitive health (coded as 1) or not doing the behaviour or doing it for reasons other than for cognitive health (coded as 0). Summary scores were constructed for the number of factors nominated as being detrimental for brain health, for the number of activities done to benefit cognition, and for the relative frequency that any activities were undertaken. Chi-square tests evaluated age-group differences in cognitive health knowledge and activities. When cells had an expected count of <5 observations, Fisher's exact tests were used. Confidence intervals (95%) were calculated for age-specific frequency proportions.

Logistic regression models tested whether theoretically relevant demographic, health, or psycho-social variables predicted cognitive health perceptions and behaviours. The predictor variables were age, sex, education, perceived ancestry, vascular factors, self-reported depression frequency (times per week feeling depressed), and exposure to dementia.

In multiple regression models, brain health awareness, brain health worry, or dementia exposure were tested as predictors of the total number, or the total frequency of activities nominated as being undertaken for cognitive benefit. Also, for those who did not undertake activities, the total number of activities perceived as potentially beneficial was tested as a predictor of intention to undertake activities in the future. All models controlled for age, sex, and education level.

Table 1
Sample characteristics (n = 900).

Characteristic	
Mean age (±SD)	54.8 (±18.0)
20–44 years (n = 290)	33.4 (±7.0)
45–64 years (n = 309)	55.4 (±5.6)
65 + years (n = 301)	75.0 (±6.6)
Sex	Percentage
Male	41
Female	59
Education (missing 11.4%)	
Still attending school	0.8
Secondary school certificate	31.9
Trade certificate/apprenticeship	7.3
Other certificate	6.3
Associate or undergraduate diploma	9.3
Bachelor's degree or higher	32.9
Location (missing 1.8%)	
Urban	62.8
Rural	37.2
Perceived ancestry (missing1.3%)	
Anglo/Australian	69.3
Australian Aboriginal	1.1
German	6.2
Greek/Italian	3.8
Other	18.2
Employment (missing 1.0%)	
Full time	32.4
Part time	17.6
Student	2.7
Looking for work	3.9
Housewife/husband	5.4
Retired	33.1
Medically unfit	4.0
Depression: for the previous week (missing 1.1%)	
Rarely or none of the time(<1 day)	70
Some or a little of the time (2–3 days)	12.7
Occasionally or moderate amount of time (3–4 days)	11.4
Most or all of the time (5–7 days)	4.8
Physical health	
Self-report high blood pressure (missing 2%)	21.2
Self-report high cholesterol (missing 4.2%)	15.6
Self-report current smoking	13.9
Mean BMI (±SD)	27.2 (6.5)
Missing (%)	10.8