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Patterns of healthy lifestyle behaviours in older adults: Findings from the Chilean National Health Survey 2009–2010

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ABSTRACT

The purpose of this study was to investigate healthy lifestyle behaviours across age categories in the older population in Chile. Data from 1390 older adults (≥60 years), in the 2009–2010 Chilean National Health Survey were analyzed. We derived the following age categories: 60–65, 66–70, 71–75, 76–80 and > 80 years. The associations between age and compliance with healthy lifestyle behaviours (smoking, sitting time, physical activity, sleep duration and intake of salt, alcohol, fruit and vegetables) were investigated using logistic regression. The probability of meeting the guidelines for alcohol intake (OR trend: 1.35 [95% CI: 1.11; 1.64], p = 0.001) and smoking (OR trend: 1.23 [95% CI: 1.13; 1.33], p < 0.0001) increased with age, whereas spending < 4 h per day sitting time or engaging in at least 150 min of physical activity per week or sleep on average between 7 and 9 h per day were less likely to be met with increasing age (OR trend: 0.77 [95% CI: 0.71; 0.83], p < 0.000; OR trend: 0.73 [95% CI: 0.67; 0.79], p < 0.0001, and OR trend: 0.89 [95% CI: 0.82; 0.96], p = 0.002, respectively). No significant trend across age categories was observed for fruit and vegetables, and salt intake. The probability of meeting at least 3 out of 7 healthy lifestyle behaviours across the age categories was also lower in older age categories compared to those aged 60 to 65 years. Overall, in older adults the probability of having the healthy lifestyle behaviours of physical activity, sitting time and sleeping behaviours was low but not for smoking or alcohol consumption. With an increasingly ageing population, these findings could inform

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stakeholders on which lifestyle behaviours could be targeted in the older adults and therefore which interventions should take place to promote healthy ageing.

1. Introduction

The major demographic shift towards a higher proportion of older adults within the population of many countries, and the health and social care costs associated with ageing, makes ageing-research a public health priority (WHO, 2017a). The World Health Organization has projected that by 2050 the population aged 60 years and older will increase to 2 billion individuals, which is equivalent to one-fifth of the population worldwide (WHO, 2017a). However, low- and middle-income countries will experience the greatest increase in the number of older adults.

Chile is one of the middle-income countries that are expected to experience an important shift towards population ageing. In the last 25 years, the proportion of older population in Chile has increased from 6.6% in 1992 to 11.4% in 2017 (WHO, 2017a), however by the middle of the century the proportion of older adults in Chile will be similar to Japan, a country with one of the largest proportions of older population in the world (WHO, 2017a). Although Chile has already developed different actions and public health policies to improve the condition of, and quality of life in, older adults such as an active ageing programme (Guevara, 2016), little is known with regard to how the Chilean population is ageing and what the main social and economic consequences of this population transition will be. Moreover, there is a lack of evidence regarding the adherence to healthy lifestyle behaviours in the Chilean older population.

Since lifestyle factors play a key role in promoting and maintaining health and wellbeing as we age (Sodergren et al., 2014; WHO, 2015a), increasing our understanding of how adherence to healthy lifestyle behaviours changes across different age categories during older age could be important for informing stakeholders on which lifestyle factors should be promoted through public health policies and intervention programmes. Therefore, the aim of this study was to investigate healthy lifestyle behaviours across age categories in the older population of Chile.

2. Materials and methods

2.1. Study design

The Chilean National Health Survey (CNHS) is a large, nationally representative population-based study of biological and lifestyle risk factors, dietary status and health, conducted every six years in Chile (MINSAL, 2009). Complex random stratified sampling was used to recruit 5293 individuals as a nationally representative sample based on statistics from the 2002 Chilean National Census, which included strata from administrative regions (county), sex and urban/rural locations, as described in detail elsewhere (MINSAL, 2009). The CNHS 2009–2010 response rate from the eligible population was 85% (5293 out of 6100 individuals accepted the invitation to take part in the study). However, a subset of participants aged ≥60 years from the 2009–2010 Chilean National Health Survey (CNHS) was included in this cross-sectional study (n = 1390 participants).

The CNHS was funded by the Chilean Ministry of Health and led by the Department of Public Health, The Pontificia Universidad Católica de Chile. The CNHS was approved by the Ethics Research Committee of the Faculty of Medicine at the Pontificia Universidad Católica de Chile (Application reference number 09-113). All participants who participated in the CNHS provided written informed consent.

2.2. Data sources

Data collection was via face-to-face interviews by trained interviewers, using a validated questionnaire. The preferred respondent for the household socio-demographics was the reported head of household, followed by their spouse or an adult household member. For questions on health status and health outcomes, all household members of 15 years of age or older were asked to complete the questionnaire individually.

2.3. Socio-demographic characteristics

Socio-demographic data were collected for all participants using nationally validated questionnaires, and included age, sex, education level (primary, secondary or beyond secondary) and monthly household income (≤US $480 (lowest), US $480–1250 (middle) and > US $1250 (highest)). Following the World Health Organization recommendations, older adults were considered all participants aged ≥60 years. For the purposes of this study, individuals were then grouped into five age categories (60–65, 66–70, 71–75, 76–80 and > 80 years).

2.4. Anthropometric measures

Height was measured to the nearest 0.1 cm using a portable stadiometer and weight was measured to the nearest 0.1 kg using a digital scale (Tanita HD313) with participants removing their shoes and wearing light clothing. Body mass index (BMI) was calculated as weight/height^2 and classified using the World Health Organization criteria for older adults (underweight: < 22,9 kg/m^2; normal: 23.0 to 27.9 kg/m^2; overweight: 28.0 to 31.9 kg/m^2; obese: ≥32 kg/m^2) (PAHO, 2003). Waist and hip circumference (WC) was measured using standardised protocols. Central obesity was defined as waist circumference > 88 cm for women and > 102 cm for men (MINSAL, 2010). Waist to hip ratio (WHR) was derived and the WHO cut-off point was used to define obesity (WHR > 0.90 for men and > 0.85 for women) (WHO, 2008).

2.5. Lifestyle behaviours

Physical activity level, including moderate and vigorous intensities and transport-related physical activity, were measured using the Global Physical Activity Questionnaire version 2 (QPAQ v2) (WHO, 2009). Physical activity was categorised into: inactive individuals (< 600 MET/min/week) and active individuals (≥600 MET/min/week) (IPAQ, 2004). Sedentary behaviour was derived using the following question: 'How much time do you usually spend sitting or reclining on a typical day?' (WHO, 2009). Participants were then classified as having low or high sitting behaviour using the population median as the cut-off point (4 h/day) (Celis-Morales et al., 2015b). The GPAQ has been previously validated in the Chilean population, showing a moderate agreement with objectively measured physical activity data (Aguilar-Farias and Leppe Zamora, 2016).

Sleep duration was collected through questionnaires where participants were asked "in a normal day how many hours do you sleep?" This variable was then categorised into normal sleepers (sleep duration between 7 and 9 h/day) and as abnormal sleepers (including short sleepers < 7 h/day and longer sleepers > 9 h/day) as suggested in previous observational studies (Celis-Morales et al., 2017; Gallicchio and Kalesan, 2009).