

# Dementia in Malta: new prevalence estimates and projected trends

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## Abstract

Previous estimates have indicated that in 2005, there were 4,072 individuals with dementia (IWD) in the Maltese islands and that this number would almost double by the year 2050. These figures were based on the EURODEM project that analysed the results of a population-based systematic review of published studies on the global prevalence of dementia from 1980 to 2004. Since then, further dementia prevalence studies have been carried out in Europe. These were reviewed in another European funded project, the EUROCODE project, with the aim of developing consensual European age and gender specific prevalence rates that would be acceptable for all countries. Using these revised rates, the estimated number of IWD over 60 years of age in the Maltese islands in 2010 was found to be 5,198; a significant increase on previous projected data. Likewise, the number of IWD in Malta over 60 years in 2030 is projected to be close to 10,000 persons or 2.3% of the total Maltese population. Using these revised estimates, the 2% prevalence rate of dementia among the local population is expected to be reached by 2025; twenty-five years prior to what was previously reported. The data presented here include current updated estimates and projections for the number of IWD in the Maltese islands.

## Keywords

dementia, Malta, prevalence, EURODEM, EUROCODE

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## Introduction

Dementia is an umbrella term that refers to a number of different medical disorders characterized by a progressive decrease in cognitive functions. Such cognitive decline includes the loss of memory and deterioration in executive functions such as planning and organizational skills, accompanied by a personality change and deterioration in cognitive function sufficient to influence social activities.<sup>1</sup> Alzheimer's disease is the most common type of dementia accounting for almost 70% of cases. Other types include vascular dementia, dementia with Lewy bodies and frontotemporal dementia.<sup>1,2</sup>

The dementia syndrome has long been considered as a 'silent epidemic' and one of the major challenges of this century, posing ever increasing demands on all health care and social systems around the world.<sup>3</sup> It is estimated that the worldwide cost of dementia was approximately €435 billion in 2010; accounting for around 1% of the world's gross domestic product.<sup>4</sup> A significant percentage of these costs occur in Western Europe and North America and are attributed to informal care (unpaid care provided by family and others), community and residential care and direct costs of primary and secondary medical care.<sup>4</sup>

According to the latest global estimates, there were 35.6 million people with dementia in 2010, with numbers nearly doubling every 20 years, to reach 65.7 million in 2030 and 115.4 million in 2050 (Table 1).<sup>5</sup> These estimates are 10% higher than previous reported data.<sup>6</sup> This increase in both prevalence and incidence of dementia is mainly due to an ageing population worldwide. The last fifty years were characterized by a significant increase in individuals over the age of 60 years, a figure that is expected to reach 22% of the population by the year 2050.<sup>7</sup> Furthermore, the increase in the number of IWD will be more marked in developing countries.<sup>7</sup> Thus, it is estimated that over the next twenty years, there will be a further 40% increase in IWD numbers in Europe, 63% in North America, 77% in the southern Latin American continent and 89% in the developed Asia Pacific

countries. However, among developing countries, such as those in Asia and North Africa, the increase in IWD will be over 100% over the next 20 years.<sup>5</sup>

Region	Number of individuals with dementia (IWD, millions)		
	2010	2030	2050
Asia	15.94	33.04	60.92
Europe	9.95	13.95	18.66
The Americas	7.82	14.78	27.08
Africa	1.86	3.92	8.74
<b>World</b>	<b>35.56</b>	<b>65.69</b>	<b>115.38</b>

**Table 1:** Global estimates of the number of IWD for the years 2010, 2030, 2050 by world region (adapted from World Alzheimer's Report, 2009).<sup>5</sup>

Similar to the global estimates, recent epidemiological studies across Europe reveal that the previous age and gender specific prevalence rates were underestimating the number of IWD. The prevalence rates obtained from the EURODEM project were based on studies that commenced in the 1980's, and did not include data from Eastern Europe. As a result, the EUROCODE project was developed by Alzheimer Europe and funded by the European Commission with the aim of developing consensual prevalence rates for Alzheimer's disease and other forms of dementia to be used by all the network partners. Following a systematic review and collaborative analysis of population based studies, the age and gender specific prevalence rates have been estimated using prevalence data indicated in Table 2.<sup>8</sup> Using these findings, in combination with prevalence rates of early-onset dementia as obtained from EURODEM data, it was estimated that in 2006 there were 7.3 million IWD in Europe, equivalent to 12.5 per 1,000 inhabitants.<sup>9</sup> The data presented here reports more accurate estimates of the current and projected number of IWD in the Maltese islands using EUROCODE criteria.

## Methods

The methodology used to determine the number of IWD in the Maltese islands was similar to the one reported in a previous study.<sup>10</sup> Since the EUROCODE prevalence rates start from the age of 60, the resulting estimates did not include individuals with early-onset dementia. Moreover, a recent systematic review acknowledged the difficulty in obtaining accurate prevalence rates for this age group, since there was a wide variation in the rates

across studies.<sup>8</sup> Nonetheless, early-onset dementia remains a rare condition with a relatively low number of cases resulting in an insignificant impact on the overall number of IWD.

Data on the five-year cohort age distribution of the Maltese population over the age of 60 in 2010 was obtained from the Malta National Statistics Office.<sup>11</sup> The projected total male and female population distributed over a five-year age cohort for the next 50 years was obtained from EUROSTAT.<sup>12</sup> The number of elderly in the 75-79, 80-84 and 85+ age groups for the projected years was then estimated. The number of IWD according to gender and age group was determined using the prevalence rates as indicated in the EUROCODE study.

Age Range	Prevalence rates of dementia (M/F)	Total population in 2010* (M/F)	Estimated number of IWD (M/F)
60-64	0.2/0.9	14931/15416	30/139
65-69	1.8/1.4	9929/10997	179/154
70-74	3.2/3.8	7566/9096	242/346
75-79	7.0/7.6	5236/7593	367/577
80-84	14.5/16.4	3090/5088	448/834
85-89	20.9/28.5	1562/2911	326/830
>90	30.8/46.6	510/1220	157/569
<b>Estimated total number of IWD</b>			<b>5198 (1.24%**)</b>

**Table 2:** EUROCODE project gender-specific prevalence rates of dementia<sup>8</sup> and estimated number of IWD in the Maltese islands according to age bracket and gender. Data shown as M/F (M: males; F: females). \*NSO data for 2010,<sup>11</sup> \*\*percentage relative to Maltese population in 2010.

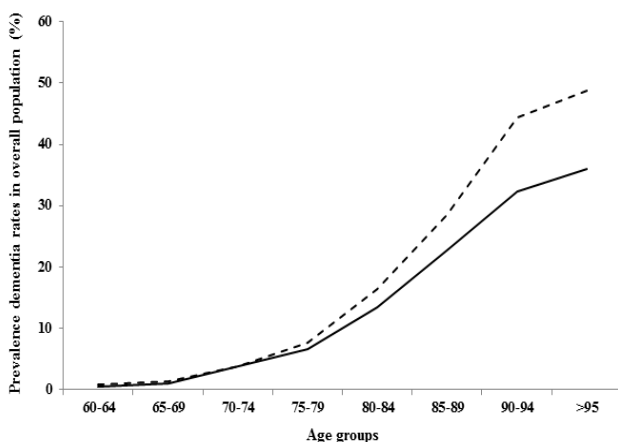
## Results

The number of IWD in the Maltese islands in 2010 according to gender and age groups, starting from 60 years of age is shown in Table 3. As expected, from prevalence rates, dementia is more common in females compared to males with a significant increase in almost all age groups, especially in the oldest-old (80 years and over). This increase is the most significant difference to be observed between the EURODEM and EUROCODE prevalence rates (Figure 1). The estimated number of IWD over the age of 60 years was found to be approximately 5,200, an increase of 18% over the previous estimates. In 2010, female individuals with dementia outnumbered males by a ratio of 2:1.

The revised projected figures for male and female IWD for the years 2015 to 2060 is shown in Table 3. The data indicate more than doubling in the number of dementia cases in the next 50 years reaching an estimated 14,037 individuals in 2060. This will account to 3.6% of the total Maltese population in that year. Further analysis of the results also show that the 2% mark in the number of IWD is expected to be reached twenty-five years prior the previous estimates using the EURODEM data.<sup>10</sup> Furthermore, the plateau that was expected by the year 2025 will not occur until 2040.

Age groups		2015	2020	2030	2040	2050	2060
60-64	M	27	27	21	27	29	25
	F	124	127	100	123	127	105
65-69	M	240	223	217	198	234	246
	F	201	186	177	164	193	185
70-74	M	246	381	376	292	382	419
	F	344	513	493	391	488	507
75-79	M	419	446	671	677	639	777
	F	601	616	871	847	800	959
80-84	M	493	620	1100	1154	946	1306
	F	945	1038	1672	1681	1380	1784
>85	M	619	750	1164	2012	2337	2356
	F	1812	2248	3021	4806	5400	5368
<b>Total IWD</b>		<b>6071</b>	<b>7175</b>	<b>9883</b>	<b>12372</b>	<b>12955</b>	<b>14037</b>
<b>% of the total pop.</b>		<b>1.47</b>	<b>1.73</b>	<b>2.37</b>	<b>3.04</b>	<b>3.26</b>	<b>3.62</b>

**Table 3:** Estimated number of gender-specific dementia cases in the Maltese islands according to age groups using EUROCODE data for the years 2015 to 2060 based on EUROSTAT demographic projections.<sup>12</sup> Data shown as M/F (M: males; F: females).



**Figure 1:** Comparison of EURODEM (solid line) and EUROCODE (broken line) age specific prevalence rates in women 60 years of age and over.

## Discussion

Similar to the revised global and European figures, the data presented here indicate that the number of IWD in the Maltese islands is expected to be significantly higher than previously reported. In contrast to EURODEM, EUROCODE data incorporate prevalence rates originating from the oldest-old female age groups, the latter being under reported in previous estimation studies.

The revised estimates continue to highlight the need of increasing awareness concerning dementia management and care not only among the public but also health care professionals who will be directly involved with patients, relatives and caregivers. Indeed, more than three fourths of the 36 million individuals with dementia worldwide have not been diagnosed and therefore may not have access to information, treatment and care.<sup>13</sup> This dearth in diagnosis has been attributed to various factors including the false belief that 'nothing can be done' or that 'dementia is part of the ageing process'. Improving the likelihood of earlier diagnosis can be improved by increasing medical practice-based educational programs in primary care, introducing accessible diagnostic and early stage dementia care services such as memory clinics, and promoting effective interaction between different components of the health system.<sup>13</sup>

The revised data also present a number of challenges to policymakers in planning services targeted towards these individuals in the various levels of care settings. Recently, a number of recommendations were presented by the Malta Dementia Strategy Group in order to consider, plan and develop services that provide high-quality care for individuals with dementia in Malta.<sup>14</sup> Nevertheless, considering the significant increase in the number of dementia cases in the near future, there remains an urgent need to provide community support. The lack of assistance available to Maltese informal caregivers, especially with regards to financial support in purchasing anti-dementia medication, has also been recently highlighted.<sup>15</sup> Moreover, it has been estimated that in the UK, up to a quarter of patients in general acute care settings at any one time, have dementia.<sup>16</sup> This continues to highlight the need for health care professionals and administrators working in our local acute settings to be trained in high-quality dementia management and care.

In line with other European countries, our data has shown that the vast majority of individuals with dementia are women. This is partly due to the fact that locally, life expectancy is higher in women compared to males. Therefore, policymakers have to take into

account the specific needs of women in the development of future social and health care plans.<sup>17</sup> There is also a need for facilitating access to research funding in the field of dementia, especially on the impact that this condition will have on the socio-economic development of future generations.

Although the findings reported here present a more accurate estimate of the number of IWD in the Maltese islands, there are methodological limitations. First, the EUROCODE project does not include prevalence rates for early-onset dementia. Thus, the estimates focus exclusively on individuals aged 60 years and over. As a result, the real number of existent cases would be expected to be higher. Secondly, epidemiological studies on which the EUROCODE prevalence rates have been formulated carry limitations of their own including different clinical criteria in diagnosis which may have resulted in differences in age-specific prevalence rates between countries. Moreover, the sampling criteria used across different European countries vary widely. The inclusion and exclusion criteria and the types of stratification employed across these studies also vary. Another limiting factor is the poor response rate, whilst few meta-analytic studies sought to examine the characteristics of non-respondents. Finally, the following projections depend on the assumption that there were no changes in the mortality and birth rates, and that no effective prevention strategies or curative treatment were in place or would be developed in the future.<sup>18</sup>

In conclusion, the data presented show a significant increase in the current number of individuals with dementia among the Maltese population compared to previous estimates. Furthermore, there may be a significant increase in the number of IWD reaching 3.6 percent of the population over the next fifty years. This will invariably put greater demands on health care services resulting in considerable socio-economic consequences. In order to face these present and future challenges, dementia care and management should be considered as among the most important health priorities in the Maltese islands.

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