A Strategy for the Prevention and Control of Noncommunicable Disease in Malta

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Department of Health Promotion and Disease Prevention
Public Health Regulation Division
Ministry for Health, the Elderly and Community Care

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Foreword

Health is a top priority of this Government. We believe that every citizen has a right to live a healthy life, as free as possible from disease and disability. This not only ensures that every citizen achieves a high standard of living. It also allows the country as a whole to move forward as a prosperous, modern and peaceful nation.

In the past, the emphasis of Government has been in improving hospital services, both in terms of infrastructure, but also in the delivery of a wide range of high quality health services.

In this new decade, the Government is now shifting its emphasis from treatment or curative services to preventive services. This reflects our recognition of the huge burden of illness and death which is preventable. Noncommunicable diseases such as coronary heart disease, stroke and diabetes are responsible for about 82% of deaths in Malta. They are also responsible for a similar amount of disability in the form of pain and suffering, reduced mobility and loss of independence. This strategy dealing with the prevention and control of noncommunicable diseases marks the start of that journey.

The chronic noncommunicable diseases are all linked by a group of common and modifiable risk factors. We are proposing concrete and co-ordinated action to implement strategies which work and which will result in a substantial reduction in death and illness. This requires action both as a nation and on an individual basis.

It is with pleasure that I present this strategy for the prevention and control of noncommunicable diseases as a concrete step on the path to an increased emphasis on preventive services.

Hon. Dr Joseph Cassar
Minister for Health, the Elderly & Community Care

Preface

Noncommunicable diseases (NCDs) are by far the biggest cause of mortality, in both developed and developing countries. Cancer, diabetes and cardiovascular diseases account for more than 75% of deaths due to NCDs globally. These three diseases are caused by a number of common risk factors: high blood pressure, tobacco use, high blood cholesterol, unhealthy diet, obesity and overweight as well as physical inactivity. In fact, they are the leading risk factors contributing to deaths due to NCDs. Apart from increasing the rate of mortality, NCDs also have considerable economic and social impacts.

This document is based on current scientific knowledge, available evidence and a review of international experience. New 2020 NCD key targets have been identified by our staff as well as potential strategies so as to address these priority areas. Studies from other countries namely France, United Kingdom, United States of America and New Zealand have been considered in the formulation of targets and strategies. The information that is presented is evidence-based and as accurate as possible. Research, data collection and analyses of relevant documents have been critically assessed. Various consultations with specialists, Non Governmental Organisations and other stakeholders were carried out by telephone, e-mail and face-to-face interview in order to ensure that the strategy is as relevant as possible..

The initial brainstorming exercise was followed by a situation analysis of the state of affairs in Malta. It was decided to divide the working document into Risk Factors (RF) and Noncommunicable disease (NCD) areas.

The approach adopted in the document has been inspired mainly by the guiding principles of the WHO CINDI vision and by the Health Vision 2000 (Malta) Report.

This strategy when performed collectively by all stakeholders, will tackle the growing public health burden imposed by non-communicable diseases. In order for the strategy to be implemented successfully, high-level political commitment and the concerted involvement of government, communities and health-care providers are required; in addition, public-health policies will need to be reoriented and allocation of resources improved.

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BMI	Body Mass Index
CEHAPE	Children's Environment and Health Action Plan for Europe
CINDI	Countrywide Integrated Noncommunicable Disease Intervention
COPD	Chronic Obstructive Pulmonary Disease
CHD	Coronary Heart Disease
CVD	Cardiovascular Disease
DALYS	Disability Adjusted Life Years
D	Decayed (teeth)
DEH	Department of Environmental Health
DHIR	Department of Health Information and Research
DM	Diabetes Mellitus
DMFT	Permanent Dentition
dmft	deciduous dentition
ECOSI	European Children Obesity Survey
EHIS	European Health Interview Survey
ENSP	European Network for Smoking Prevention
ESPAD	European School Survey Project on Alcohol and Other Drugs
EU	European Union
FAOSTAT	Food and Agriculture Organization Corporate Statistical Database
FT	Filled Teeth
GI	Glycaemic Index
GP	General Practitioner
HBSC	Health Behaviour in School-Aged Children
HFA-DB	Health for All Database
ICCO	Intersectoral Committee on Obesity
IGT	Impaired Glucose Tolerance
ISAAC	International Study on Asthma and Allergies in Children
KADA	Kummissjoni Kontra l-Abbuż mid-Droga u l-Alkoħol
L.N.	Legal Notice
M	Missing (teeth)
MCH	Mount Carmel Hospital
MEPA	Malta Environment and Planning Authority
MHRA	Malta Hotels and Restaurants Association
NCD	Noncommunicable Disease
NGO	Non Governmental Organisation
NOIS	National Obstetric Information System
RO	Reverse Osmosis
RPGs	Regional Priority Goals
SDR	Standardized Death Rate
WHA	World Health Assembly
WHO	World Health Organisation
WSC	Water Services Corporation

Executive Summary

Noncommunicable diseases (NCD) such as cardiovascular disease, cancer, chronic obstructive pulmonary disease (COPD), and mental ill-health are a significant health and economic burden on the population of Malta and require a search for effective strategies.

The concept of an integrated approach borrowed from the experience gained by the World Health Organization Countrywide Integrated Noncommunicable Disease Intervention (CINDI) Programme as well as from international research on how to cope with major chronic diseases throughout a person's entire life span has served as a solid base for the formulation of this national strategy.

The CINDI approach is based on evidence that a small number of risk factors and conditions are common to major chronic diseases. This commonality means that integrated action against selected risk factors implemented within the social context can lead to a reduction of major NCD as well as an improvement in public health. Current scientific knowledge and experiences can be adapted to the local needs.

Presently NCD prevention efforts are targeted at specific risk factors, social and environmental determinants through health promotion initiatives and primary health care services via an effective information system. The strategy aspires to reduce NCD by implementing population strategies which encourage healthy lifestyles and the creation of a social environment that supports health as well as targeting high risk behaviours aimed at improving risk profile through preventive measures at an individual level.

The **overall goal** of the NCD strategy is:

To develop a mutifactorial approach to NCD prevention through tackling common risk factors targetting both at a population level, and also high-risk groups.

The strategy aims to:

- Reduce the burden of NCD by targeting the following major chronic diseases: cardiovascular disease, chronic obstructive pulmonary disease, mental ill-health and cancer;
- Reduce the burden of oral diseases;
- Improve the individual risk profile by focusing on:
  - four lifestyle-related factors: diet, physical activity, tobacco and alcohol
  - four biological risk factors: obesity, hypertension, hyperlipidaemia and carbohydrate abnormalities

To achieve this, explicit strategic approaches are to be applied to:

- individual risk reduction (aimed at high-risk individuals)
- population risk reduction (aimed at social determinants)
- rational and effective use of health services (by empowering users and health care providers especially in the primary health care setting)
- an integrated referral system support
- a robust health information system
- effective health promotion initiatives

These efforts will be guided by the following implementation strategies:

- surveillance
- policy development
- capacity building
- dissemination of information and experience

All of the above must be related to an improved socio-economic environment by focusing on the reduction of three major social determinants of NCD primarily through intersectoral collaboration.

- poverty
- unequal access to educational opportunities
- unemployment and low pay employment

1. INTRODUCTION

1.1 Background

The WHO Global Forum for Integrated NCD Prevention and Control strategy for 2000 stated that:

"No longer can each chronic disease be considered in isolation. Awareness is increasing that they (chronic illnesses) share common, usually related factors, and that integrated strategies can be effective for many different conditions."

WHO introduced the concept of an integrated approach in 1981 which was later endorsed by the World Health Assembly in 1985, leading to a WHO programme to test and evaluate comprehensive, community-based approaches to chronic disease prevention and control - the CINDI Programme. The WHO CINDI (Countrywide Integrated Noncommunicable Disease Intervention) programme aims to improve community health and quality of life by controlling risk factors for noncommunicable disease in an integrated manner. Malta is one of the member countries of the Programme.

There is strong evidence that noncommunicable diseases are linked to several lifestyle-related key risk factors such as, unhealthy diet, physical inactivity, tobacco use and alcohol abuse operating in a disadvantaged socio-economic environment. Investing in prevention and improved control of NCD would improve the quality of life of the people through comprehensive action on the leading causes and conditions. These conditions include cardiovascular disease, chronic obstructive pulmonary disease, mental ill-health and cancer. Effective interventions to significantly reduce the burden of premature death and disease will bring significant health and economic gains to Malta. Interventions in middle/older age have short term benefits whereas interventions in early life have substantial effects.

The World Health Assembly (WHA) in 1998 recognised the threat posed by NCD and a global strategy for NCD prevention and control was developed declaring that their prevention and control will be a priority. NCD currently account for some 60% of global deaths and about 47% of the global burden of disease. It is estimated that by 2020, 70% of the global burden of disease, will be caused by NCD.

The Global Burden of Disease project estimates that 87% of all deaths in the EURO-A region, which includes most of Western Europe, are attributable to NCD, compared to 82% in Malta (National Mortality Register 2009, Malta). Cardiovascular disease is considered to be the most prevalent of these conditions. In fact, around the Mediterranean basin, a mean of 10.4 DALYs (Disability Adjusted Life Years) per 1000 population are lost due to heart disease, together with another 7.5 DALYs per 1000 population due to cerebrovascular disease. In Malta, these figures were estimated to be 9 DALYs for heart disease and 4 DALYs for stroke. A North-South gradient was observed across the Mediterranean with France, Italy and Spain reporting the lowest rates and North African countries reporting the highest rates (Global Burden of Disease, WHO, 2002).

The European Strategy on noncommunicable diseases (EUR/RC54/8) supports the development of a national public health strategy to tackle NCD in a cost effective way. A multisectoral approach to address risk factors and their underlying determinants includes integrated actions by:

- Adjusting health systems towards improved prevention and control of NCD.
- Regarding prevention as an effective investment throughout the course of life.
- Strengthening national access to Health Promotion, Disease Prevention and Health services as a fundamental means to achieve equity in health, thereby enabling communities to become active participants in decisions concerning their health.
- Setting up of multisectoral mechanisms.
- Strategic consensus building among different stakeholders, such as governmental, non-governmental and private sector organisations in an effort to increase cooperation and responsiveness to population needs.
- Simultaneous prevention and reduction of a set of risk factors common to major NCD.
- Population level health promotion and disease prevention programmes.
- Targeting of high risk individuals

This strategy reiterates the importance of intersectoral action and leadership by the Public Health Regulation Division of the Ministry for Heath, the Elderly and Community Care of Malta.

Currently, the majority of NCD deaths, disability and morbidity occur disproportionately in the poorer countries and are contributing to widening health gaps between and within countries. This results in enormous human suffering and produces an increased threat to the socio-economic development of many countries.

In the Maltese scenario, the Health Vision 2000 (Malta) Report states:
"Prevention of many of the major diseases, or their complications, such as coronary heart disease, certain cancers, and non-insulin dependent diabetes is possible and this calls for a shift in emphasis towards prevention and health promotion. The lifestyle risk factors of smoking, unhealthy diets, obesity and lack of physical activity must be tackled seriously. We must provide the environment and facilities for people to be able to make the right choices. This requires a long-term commitment and a standardised approach to the evaluation of health promotion initiatives.

Intersectoral participation is needed to ensure the prevention and control of disease, the promotion and maintenance of health, the ensuring of a healthy lifestyle and health-conducive economic and social environment, and the provision of health services appropriate to people's needs. Such action implies co-operation among government departments, agencies, voluntary organisations, and other sectors such as business and industry, labour unions, local councils and professional groups. It also implies a constant search for quality and cost-effectiveness.

Major NCDs are responsible for about 82% of deaths in Malta. Currently, cardiovascular disease is the top cause of mortality in Malta accounting for 40% of all deaths. In 2007, the percentage prevalence of diabetes (20-79 yrs) in Europe was 8.4% as compared to Malta with 9.2% prevalence. However, this rate is expected to rise to 11.6% by 2025.

In terms of equity, addressing social determinants would be a step in the right direction as 14.9% are at risk of poverty. There still exists a lack of educational opportunities for 12% of illiterate people and unemployment stands at 4.2%.

The population in Malta is also ageing as in the European Region. This has clear implications on the morbidity and mortality from chronic diseases, on the burden on health services and related costs.

It has become the responsibility of the Maltese Government to integrate public health and to move chronic disease prevention from "important and not urgent" to "important and urgent". All

vertical programmes must connect horizontally or opportunities will be lost, duplication of effort may occur and resources will be wasted.

The Public Health Regulation Division with its leading role for this strategy will act as an advocate to bring on board other sectors across government and awareness must be increased of non-health sectors to demonstrate that they are as responsible as the heath sector in the prevention of NCD. This would lead to cost effective approaches and improved health.

1.2 Evidence

The World Health Report 2002, the WHO Resolutions of WHA, the Regional Committee for Europe, European Public Health Programmes, the CINDI Program are only but a few of the international organisations who describe their experiences and best practices in NCD prevention.

The CINDI experience shows that Integration is a key principle to combat NCD and refers to interventions (action plans) aimed at several risk factors using a comprehensive approach, intersectoral action and the combination of population and high-risk strategies. Availability of resources and links between health promotion, public health, primary care and hospital care are a prerequisite for the interventions to work.

CINDI chose tobacco, physical activity and dietary habits as the top three risk factors to be targeted. Interventions are to be undertaken in different settings such as the community, the workplace and schools.

Examples of countries success on the reduction of Coronary Heart Disease using such approaches:

- Finland. (1972 – 1992) obtained an 80% reduction in CHD mortality by a decline in the major risk factors.
- Ireland. (1985 – 2000) obtained a 48.1 % reduction in CHD mortality in 25 to 84 year olds, attributable to favourable trends in population risk factors.

Examples of effective interventions include:

- Laws and regulations – environment, tobacco etc
- Tax and price interventions – increase tax on tobacco, subsidies for healthy choices
- Lowering the fat, salt and sugar content of processed foods
- Advocacy – web sites, mass media, lobbying, one to one
- Enhancing the health enhancing environments in schools, the workplace and the community – modify lifestyle behaviours by offering exercise facilities, improved nutrition, no drugs, alcohol or smoking
- Enhancing social support for the elderly
- Training programmes to equip people with problem solving skills
- Screening programmes if cost effective eg breast screening
- Disease management – early diagnosis, evidence-based tools, effective information systems, multidisciplinary healthcare teams, patient self-management
- Clinical prevention – the correct choice of medicines
- Rehabilitation and palliative care

Interventions must be based upon tackling the wider health determinants to obtain substantive health gains. These include economic growth, equality in personal income, poverty control, education, an enabling working environment, a decline in unemployment , better jobs and access to heath care.

1.3 Environmental Health Related Issues to NCD

There has been increasing awareness and concern among the scientific community as well as among the general public of the potential effects on human health of factors in the environment. Many noncommunicable diseases including cardiovascular and respiratory disease, mental illness, some cancers as well as occupational diseases and injuries, have, to a greater or lesser extent, directly or indirectly, been linked to the environment.

Many environmental risks to public health are well established, such as indoor and outdoor air pollution; other public health 'modern' risks, however, are highly uncertain and may be quite complex. These risks are related to, for example, exposure to dangerous chemicals, hazardous wastes, non-ionising radiation and industrial pollutants through food, air and everyday products. This may result in effects that appear long after exposure, hindering the establishment of causal links. Such effects may be irreversible and costly to health and the environment.

The ever-increasing motorisation and vehicle use is contributing largely to air and noise pollution with ensuing effects on cardiopulmonary and mental health. There is an increasing body of evidence linking land transport-related air pollution to an increased risk of death, particularly from cardiopulmonary causes. It increases the risk of respiratory symptoms and diseases that are not related to allergies. Moreover, it may increase the risk of developing allergies and can exacerbate symptoms, particularly in susceptible groups. Results from the International Study on Asthma and Allergies in Children (ISAAC) show a dramatic increase in the prevalence of childhood asthma in 5-8 year old Maltese children from 7.5% in 1994 to 14.8% in 2001.

While only a few studies have been conducted on the effects of transport-related air pollution, they report a significant rise in the risk of myocardial infarction following exposure. A few studies suggest increased evidence of lung cancer in people with long-term exposure. Long-term decreases in air-pollution levels are associated with decreases in average annual deaths from all causes and declines in respiratory and cardiovascular diseases. Such decreases are also associated with gains in life expectancy (Kyrzyanowski M, 1994).

In a recent study it was shown that children who regularly walked or cycled to school demonstrated lower scores for depression and aggression than children who were driven to school. (Transport Related Health Effects, Cost and Benefits, with a particular focus on children – Physical Activity Topic Paper).

One key factor in encouraging physical activity is overcoming barriers which limit physical activity. A number of these barriers are environmental barriers which include inadequate availability of public leisure areas and of appropriate areas for physical activity hence making physical activity not easily accessible to all.

Decreased mobility patterns due to increased motorisation and car dependency contribute largely to obesity and related diseases. It is well known that physical inactivity is one of the main risk factors for a substantial amount of cardiovascular deaths from myocardial infarction and stroke.

The alarmingly high incidence of obesity in Maltese children is of great concern. International Obesity Task Force collated data (Cole et al BMJ 2000) indicates the prevalence of childhood obesity in the EU and the accession countries. 2006 data from the "Health Behaviour in School-aged Children Survey (HBSC)" shows that 25% of girls and 30% of boys aged 11 years in Malta were overweight (self reported). This increases to 31% for both sexes by the age of 13 years.

One of the main environmental pollutants contributing to poor indoor air quality with resulting negative health effects is environmental tobacco smoke. Malta was one of the first countries to ratify the Framework Convention in Tobacco Control and to prohibit smoking at the workplace and in public places by law, as well as the prohibition of advertising of tobacco. The area that remains to be tackled is the indoor home environment, where education about the adverse effects

of Environmental Tobacco Smoke on lung and cardiovascular health, even through passive smoking, needs to be underlined.

Malta is signatory to a number of international protocols and treaties to safeguard the environment and consequently human health such as the Barcelona convention, the Stockholm convention etc.

Malta has committed to revising its National Environment and Health Action Plan (NEHAP, 1997) to resume new targets and priority actions for the period 2006-2010. The NEHAP is intended as a policy framework document for implementation across all government departments and major sectors.

New to the revised document, and in line with the commitments made by local ministers of health and the environment in June 2004 through the Budapest Ministerial Declaration, is the introduction of child-specific actions explicitly directed at protecting our children's health and well-being from the harmful effects of environmental hazards, in particular those indicated by the Children's Environment and Health Action Plan for Europe (CEHAPE) Regional Priority Goals (RPGs) I – IV.

In parallel to this and reflecting what is taking place at European level, Malta as a Member State is committed to the implementation of the European Environment and Health Strategy 2004-2010, which presents a vision on how to address environment and health issues in a more integrated way. The action plan aims to establish a good understanding of the link between environmental factors and childhood respiratory diseases, asthma, allergies, obesity, neurodevelopment disorders, childhood cancer and endocrine disrupting effects, and it aims to identify and to prevent new health threats caused by environmental factors.

1.4 Strategic Framework

The proposed strategic framework has been adapted to the Maltese national situation and to the capacities of the countries' health system to be able to have an effect throughout the island.

One of the Maltese Government's objectives in improving the health status of the populations of Malta and Gozo is:

'To add health to life by increasing years lived free from ill-health, reducing or minimising the adverse effects of illness and disability, promoting healthy lifestyles, healthy physical and social environments and, overall, improving quality of life'.

In line with the Government's objective, the Health Division's main objective and strategic directions in improving health and the quality of life in the Maltese population are as follows: -

1.4.1 Main Objective

- to develop a comprehensive and integrated strategy on the 'prevention' of the major NCD risk factors.
- to develop a comprehensive and integrated strategy for the reduction and control of the major NCD risk factors.

1.4.2 Strategic Directions

- by focusing activities for the '*reduction*' of the prevalence of NCD risk factors in order to reduce morbidity and mortality.
- by the prevention and control of NCD and the '*promotion*' of health through the use of effective partnerships.

The focus will be to prevent:

- to prevent the onset of disease
- to prevent recurrence of disease
- to prevent progression of disease
- to prevent late diagnosis
- to prevent onset of complications
- to prevent disability
- to prevent premature death

1.4.3 Strategic Document

This strategic document includes Risk factors in section 1 and Specific Noncommunicable Diseases in section 2. Each section begins by showing the Health Vision 2000 Key Targets and its evaluation, followed by a statistical analysis presenting all the relevant data for each risk factor and disease in Malta. New 2020 NCD Targets have also been formulated at the end of each section followed by strategies to achieve these targets.

Most of the data used in this document has been taken from the National Health Interview Survey and the European Health Interview Survey (HIS) carried out in Malta in 2002, and 2008 respectively.

2. RISK FACTORS

2.1 Introduction

The aim of this strategy is to develop a mutifactorial approach to NCD prevention through tackling common risk factors targeting both population-level and high-risk groups.

This section puts forward the **Strategies** required to control the Risk Factors to reduce the level of Noncommunicable Diseases.

The Risk Factors tackled are the following:

2.2 Unhealthy Diet
2.3 Physical Inactivity
2.4 Tobacco
2.5 Alcohol
2.6 Obesity
2.7 Raised Blood Sugar
2.8 Raised Blood Pressure
2.9 Raised Serum Lipids

Each section is subdivided into the following:

- Health Vision 2000 Targets and their evaluation (where available).
- Presentation of statistical evidence.
- Strategies to achieve the new Noncommunicable Disease (NCD) targets for 2020.

In most Member States of the WHO European Region, more than two out of three adults have one or more of the major risk factors for cardiovascular disease (CVD). The situation is all the more serious as people with more than one risk factor, even at moderate elevation, are at significantly increased risk of morbidity and premature death.

A general recommendation for all risk factors is that a support system is required to prevent the development of risk factors and to manage and treat persons suffering from these risk factors. Such a support system will include a multidisciplinary team, and will be able to manage a case with multiple risk factors and also help prevent the development of other risk factors.

A multi-stakeholder involvement is the key to the success of the strategy for control of NCD. The engagement of stakeholders in collaborative working is essential for:

- Sharing of expertise
- Sharing of responsibility
- Authority for change

2.2 Unhealthy Diet

Key Target - Health Vision 2000

None

The modern food environment provides a wide range of opportunities to consume food and drink products, commonly leading to what has been described as 'passive overconsumption'. Studies show that the consumption of very energy-dense diets and energy-rich drinks such as sugary drinks are the main factors conducive to this inadvertent overeating. (WHO 2007).

Dietary habits in the WHO European region show that Southern European countries tend to consume more fruit and vegetables and their dietary intake of fat is less than that of other European regions. This type of diet prevalent in the Southern European region has been termed the Mediterranean diet and studies have shown it may have a protective effect against cardiovascular disease. This is due to its emphasis on plant based foods providing a wide range of complex carbohydrates and legumes, nonstarch polysaccharides (dietary fibre) and typically low in saturated (animal) fats, with a rich mix of seasonal fruits and vegetables. Studies conducted by Keyes et al and Trichopoulou et al also stipulate that the daily presence of olive oil (as part of a healthy diet) in Mediterranean dishes further contributes to the cardioprotective qualities of this diet.

The Lyon Study showed that a Mediterranean diet high in α-linolenic acid (ALA), may improve the prognosis of patients having survived a first acute myocardial infarction. Results showed a striking 50 to 70% reduction of the risk of recurrence of a second cardiac episode after four years of follow-up (de Lorgeril and Salen 2006).

The North Karelia Project illustrates that interventions could greatly affect health outcomes. By reducing the risk factors leading to cardiovascular disease, mainly through the cutting down of dietary fats and reducing smoking, over a period of 30 years the annual age-adjusted mortality rate from coronary heart disease in the middle-aged (below 65 years) male population had decreased by about 82% from the pre-programme years (1967-71) (Pushka P 2002)

One of the key concerns that prevails across all the Maltese age groups is the positive energy balance that the majority of the population presents. This reflects total calorie consumption well beyond the energy requirements of the individual. Persons in positive energy balance that often increases in severity throughout adulthood are highly likely to develop conditions that would ultimately lead to Cardiovascular diseases (CVD). Being overweight increases the risk of cardiovascular disease and stroke. It is important to try to achieve and maintain an ideal body weight and this can be attained by doing regular physical activity and eating a healthy diet.

Unfortunately the coupled impact of globalisation and modern lifestyles has shifted the Maltese diet away from the traditional Mediterranean one. This has gradually resulted in dietary patterns leading to increased intake of processed meats and other processed food products with the concomitant result that trans fats, saturated fats, sugar and salt have increased. The fact that healthy foods are generally more expensive (although nowadays every effort is done to minimise this) might have contributed to this change in dietary habits especially amongst the lower socioeconomic groups.

Local statistics

The HIS 2002 contained a section about the dietary habits which however was not included in the 2008 HIS survey. Thus any changes in the dietary habits in the interim period, between 2002 and 2008, cannot be explored.

The 2002 survey shows that the most popular methods of cooking among the survey population are steaming, baking/roasting and grilling. Fish consumption is low when compared to meat consumption. It is interesting to note that fish consumption increases and meat consumption decreases with age. 72% of the survey population consume chicken or rabbit once or twice a week. However, 15% actually reported eating highly processed meat products such as burgers and sausages on a daily basis.

The consumption of fried potatoes is markedly high especially in the younger age groups. Half the survey population (50.5%) consume fried potatoes at least once a week. The addition of salt with meals is very widespread with 47% of the respondents reporting that they almost always add salt during cooking and 24% almost always add salt at table. The intake of beans or pulses is practiced by 60% of the population. Skimmed milk consumption increases with age with a corresponding decrease in fresh milk (2.5% fat content) consumption. However, evaporated milk is still fairly popular particularly with the elderly.

Maltese bread is still the most popular type of bread with a median consumption of two slices per day. However, the consumption of brown bread improves with age and is more popular with women and with individuals with a higher level of education. Although vegetable oil seems to be increasingly popular, the consumption of olive oil decreases with age.

Sweet pastries are consumed at least once a week by 60% of the survey population across all age groups. Sugar intake is inversely proportional to the level of education with people having a higher education consuming less sugar. Women tend to take less sugar with tea and coffee than males. Added sugar decreases with age in both genders. Over one fifth of the population report having sugared soft drinks on a daily basis whilst only 16% of the population drink sugar free soft drinks.

The 2008 HIS survey only focussed on the consumption of fruit and vegetables. Self reported consumption of fresh fruit on a daily basis is at 74%. Vegetable consumption is generally lower, with 50% reporting they consume vegetables daily and 40% stating they consume vegetables between one and four times a week. In general, consumption of fruit and vegetables improves with age.

Strategy Targets for 2020

Reduce the frequency of intake of processed meat products which currently stands at 15% daily by 5%.
According to the latest data available, processed meat products are very popular especially in the younger age groups. These are associated with a very high fat content.

Increase the frequency of intake of fish by reducing the percentage of the population who never consume fish by 20% from the current level of 41.6%.
Although fish is readily available, its consumption is very low.

Increase the proportion of the Maltese population who consume vegetables on a daily basis by 25% especially in younger age groups.
Fruit consumption on an almost daily basis is about 74% and vegetable intake is around 50%. The WHO and American FDA recommendations advocate the five-a-day regime of fruit and vegetables and local ongoing campaigns reinforce this message.

Reduce consumption of sweets, sweet pastries, and sugared soft drinks six times a week or more by 10%.
Consumption of refined, high calorie products on a daily basis is very high, particularly sugared soft drinks in the younger age group. This younger age group tends to consume large amounts of sweets and this practice should be addressed immediately.

Limit salt consumption by 10%
The addition of salt both at table and while cooking (24% and 47%, respectively), is still highly prevalent. Reducing salt intake or substituting it with low-sodium alternatives to limit consumption to a maximum of 5g per day should be encouraged.

Reduce the mean daily intake of animal fat per capita by 10%
Fat/oil products high in saturated fats are still being consumed fairly frequently while olive oil consumption is still very limited. A shift from oils high in saturated fats to healthier alternatives, high in unsaturated fats is desirable. The mean daily intake of animal fat per capita in Malta was 21.3g/person/day in the year 2005 according to FAOSTAT.

Strategies

The strategies formulated to reduce the level of morbidity by controlling the dietary intake of food in the general population are as follows:

- To encourage the population to follow the dietary guidelines issued by the Department of Health Promotion and Disease Prevention in Malta
- To continue discussions with the food industry on product reformulation, for instance by decreasing fat and salt content of food.
- To consider initiatives to make the price of fish and rabbit more reasonable to the Maltese consumer.
- Promote healthy attractive and easy to cook recipes
- Renew current policy on breastfeeding which includes; increasing awareness provision of assistance to mothers, making breast feeding easier at most places and ensuring a legal framework for the marketing of breast milk substitutes (CINDI 2000).
- To review the structures responsible for the design and implementation of nutrition-related programmes.
- Strengthening compliance with the ban of sale of junk food from school canteens
- Campaigns to increase fruit and vegetable consumption targeting children and younger age groups
- Increasing availability of fruit and vegetables in canteens and restaurants
- Promote the Mediterranean diet
- Adopt the twelve steps to healthy eating advised by WHO

    - Eat a nutritious diet based on a variety of foods originating mainly from plants, rather than animals.
    - Base meals on a variety of bread, grains, pasta, rice or potatoes.
    - Eat a variety of vegetables and fruits, preferably fresh and local, at least five portions per day (at least 400g per day).
    - Maintain body weight within the recommended limits.
    - Control fat intake (not more than 30% of daily energy) and replace most saturated fats with unsaturated vegetable oils or soft margarines.
    - Replace fatty meat and meat products with beans, legumes, lentils, fish, poultry or lean meat.
    - Use milk and dairy products (yoghurt and cheese) that are low in both fat and salt.
    - Select foods that are low in sugar limiting the frequency of sugary drinks and sweets.
    - Choose a low-salt diet. Total salt intake should not be more than one teaspoon (5g) per day, including the salt in bread and processed cured and preserved foods.
    - If alcohol is consumed, limit intake to no more than two drinks (each containing 10g of alcohol) per day.
    - Prepare food in a safe and hygienic way. Steam, bake, boil or microwave to help reduce the amount of added fat.
    - Promote exclusive breastfeeding and the introduction of safe and adequate complementary foods from the age of about six months, but not before four months, while breastfeeding continues during the first years of life.

- Perform studies to assess the present situation including:
    - A study to assess the nutritional status and eating habits of the whole population and sub-groups within this population.
    - An analysis of the nutrient content of traditional Maltese food.

These studies would make the evaluation of the above initiatives possible and would give us the necessary baseline information for the setting of more realistic targets in the future.

2.3 Physical Inactivity

Key Target – Health Vision 2000
None

The importance of a physically active lifestyle has now well been established both on the individual and on the population level. At the same time, physical inactivity has become a global problem. The need for a more integrated approach to physical activity promotion strategies has been felt and to address this need, the HEPA Europe, the European network for the Promotion of Health-Enhancing Physical Activity was founded in May 2005. The aim of this network is to strengthen and support efforts and actions to increase participation in physical activity and improve the conditions favourable to a healthy lifestyle.

Active living benefits all age groups, especially at both ends of the spectrum. It encourages healthy development of children and young people and can make a dramatic difference to the well-being of older people. Physical activity is being promoted in the normal daily living environment of most people. Every setting be it transport, housing, the workplace, school and leisure presents an opportunity for physical activity.

Regular physical activity can help prevent and reduce obesity and maintain a healthy weight. It can also promote psychological well-being, reduce stress and anxiety and feelings of depression and loneliness. WHO recommends that adults should undertake 30 minutes or more of moderate-intensity physical activity on most, preferably all, days of the week. Epidemiological research has proven that 15-20% of the overall risk for coronary health disease, type 2 diabetes, colon cancer, breast cancer and fractured hip in the elderly is attributable to physical inactivity (10 things you need to know about physical activity, WHO).

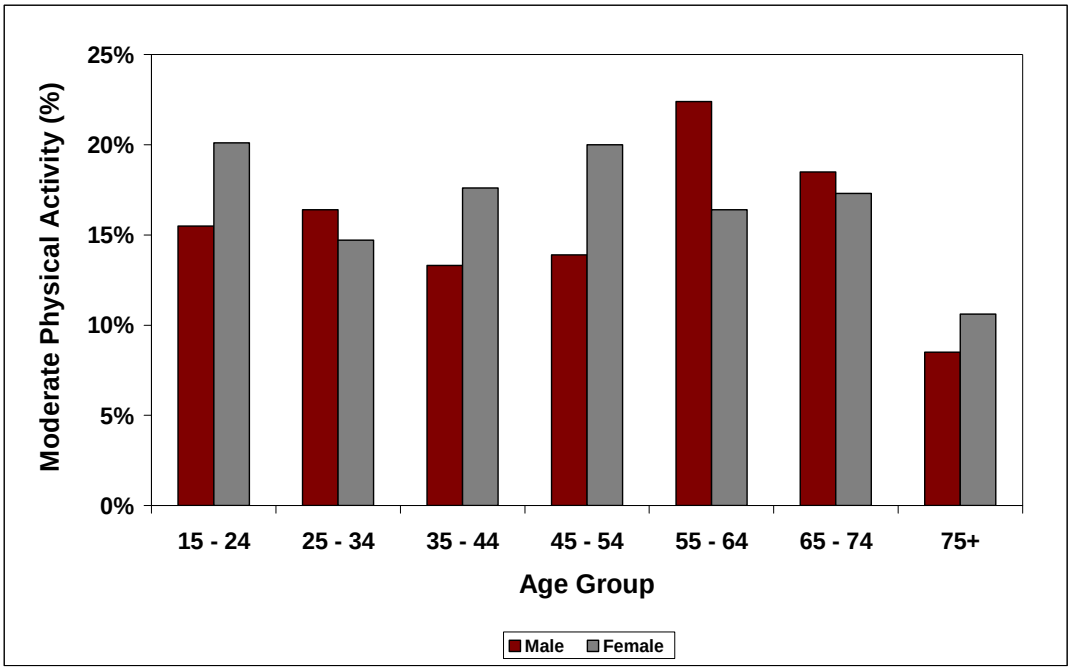


Figure 2.3.1: Participation in a moderate level of weekly physical activity
Source: HIS 2008

Local Statistics

The 2008 Health Interview Survey assessed the level of physical activity among respondents. Overall, 16.6% of respondents stated they carried out a moderate level of physical activity, while 26.9% carried out a high level of physical activity per week. Males, especially in the younger age groups, reported carrying out a higher level of physical activity than females, while females carried out more moderate physical activity than males.

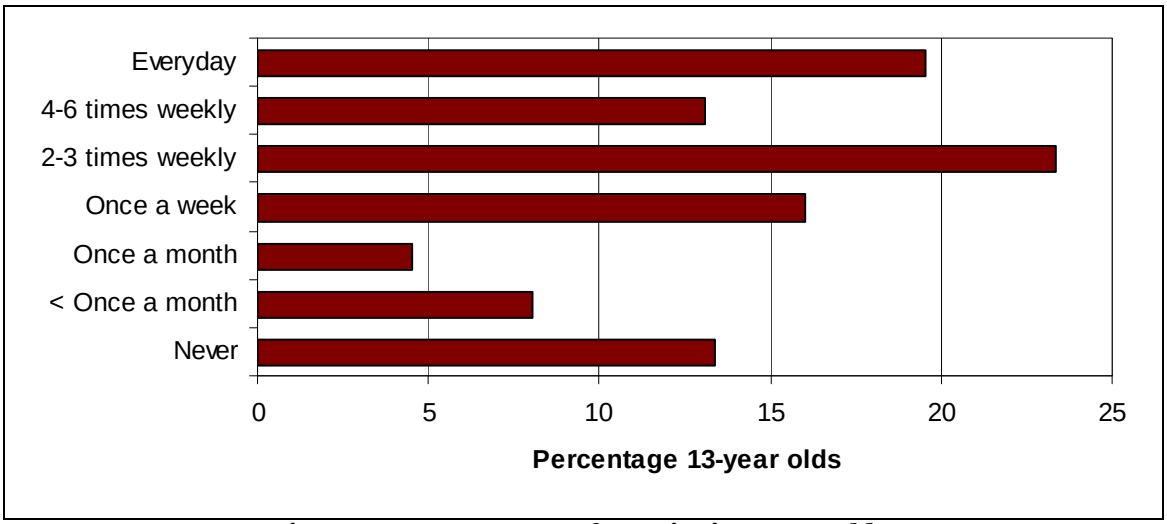


Figure 2.3.2: Frequency of exercise in 13 year olds
Source: HBSC 2006

The Health Behaviour in School-Aged Children Survey (HBSC) conducted in 2006 reports that as many as 14% of children never undertake any exercise, 4.5% of the respondents reported

participating in exercise once a month while 8% perform exercise at a frequency of less than once a month.

A study carried out by the School Health Services in 2008, as part of a WHO initiative, the European Children Obesity Survey (ECOSI), the amount of physical activity between different school types at primary level varied as shown. None of the Church schools perform more than 2 hours of physical activity per week, with 50% dedicating 1 hour or less to physical activity per week.

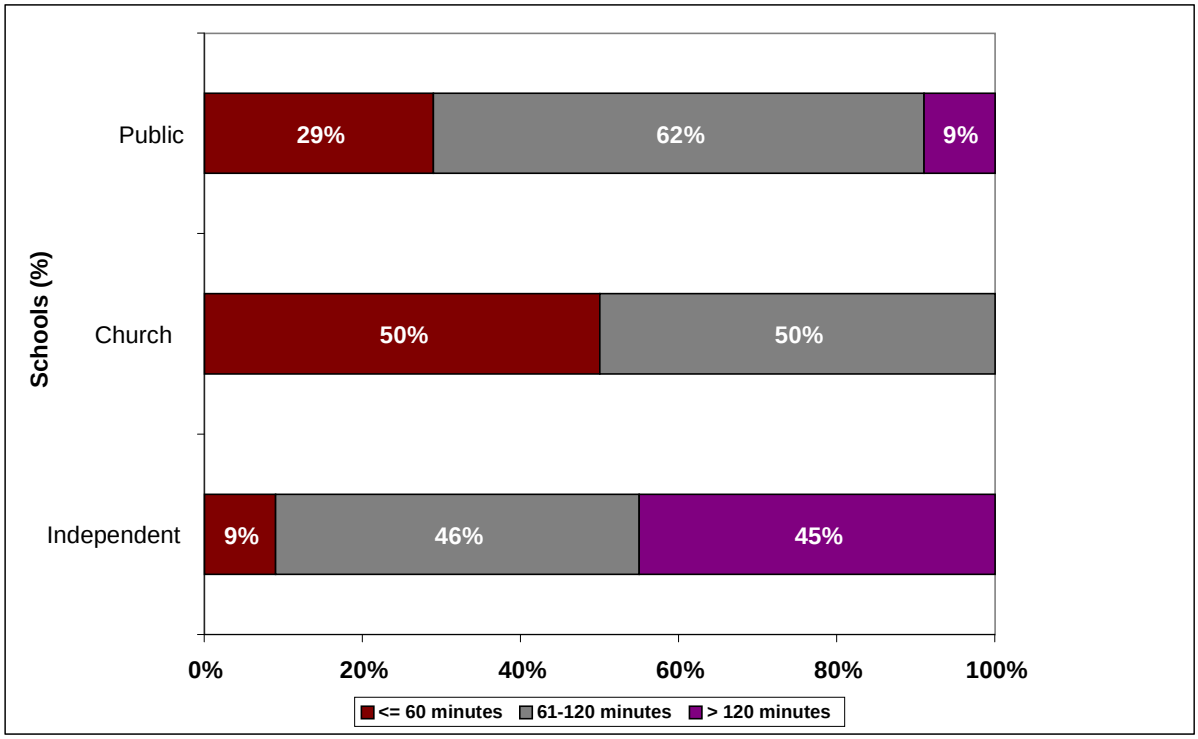


Figure 2.3.3: Time allocated to physical activity per week in primary schools in Malta
Source: ECOSI Malta 2008

Strategy Targets for 2020

To increase the proportion of the Maltese population who carry out a moderate or high level of physical activity daily or on most days, from the current 43.5% to 70%.

To reduce the proportion of children and adolescents who never perform any exercise by 5%.

Strategies should aim to shift all those within the 'Low level of physical activity', and 'Moderate level of physical activity' categories to the 'High level of physical activity' category.

Strategies

The Strategies recommended to reduce the level of morbidity by increasing physical activity in the general population are as follows:

- To encourage every adult to accumulate at least 30 minutes of moderate - intensity physical activity on most days, preferably all days of the week.
- To urge all young people (aged 5–18 years) to participate in physical activity of at least moderate to vigorous - intensity for at least 60 minutes a day.
- To encourage programmes of healthy eating and physical activity as explained in other parts of this document, thus reducing the risk factors of obesity and a sedentary lifestyle.
- To promote dietary and physical activity guidelines issued by the Department of Health Promotion and Disease Prevention in Malta.
- To support initiatives and projects to promote physical activity, such as Health Promoting School initiatives (schoolchildren), Healthy Workplaces initiatives (workplace), Free Weight Management classes and Free Aerobic Sessions. These initiatives are co-ordinated by the Health Promotion Unit.
- To reduce the number of children and adolescents who spend their time sitting down especially during leisure time.
- To reduce the number of physically inactive adults.
- To reduce the number of adults who spend their free time sitting down.
- To amend the school curriculum to include at least 30 minutes of daily physical activity (American Heart Association).
- Infrastructural changes through intersectoral collaboration to;
    - Enhance public leisure areas
    - Increase availability of areas for physical activity
    - Make physical activity accessible to all
- To educate the public on the benefits of Health Enhancing Physical Activity.
- To promote physical activity in all settings.
- To promote walking as a means of active transport.

2.4 Tobacco

Key Target – Health Vision 2000
None

- **By the year 2000, the number of school children who take up smoking should be reduced by 50% of the rate established in the 1995 census**
  In 1995, 16% of males and 9% of females aged between 15 and 19 years were current smokers. In the 2006 HBSC survey, the proportion of 16 year old girls smoking 40 times or more in the previous month was 9.6% which is higher than in boys (7%)

- **By the year 2000, the incidence of smoking amongst adolescents should be reduced to 30% and 20% for males and females respectively of that in the 1995 census.**
  No evidence available

- **By the year 2000, to increase the number of pregnant women who stop smoking at the start of their pregnancy and subsequently by 75% of the 1996 figure.**
  No evidence available

- **By the year 2000, to increase by 30% of the level in 1996 the number of husbands [or partners] of pregnant women, who stop, and subsequently refrain from smoking**
  No evidence available

- **By the year 2000, to increase the number of applicants for participation in Smoking Cessation Counselling sessions by 100% of the 1995 figure.**
  No figures are available for 1995

Tobacco is the single largest cause of avoidable death in the European Union, accounting for more than half a million deaths every year and more than a million in Europe as a whole. Tobacco use continues to be the single largest cause of death and disease in the EU. It is estimated that 25% of all cancer deaths and 15% of all deaths in the European Union could be attributed to smoking, Moreover, a further 13 million people suffer from a chronic disease caused by smoking. (Eurobarometer, 2006).

Local Statistics

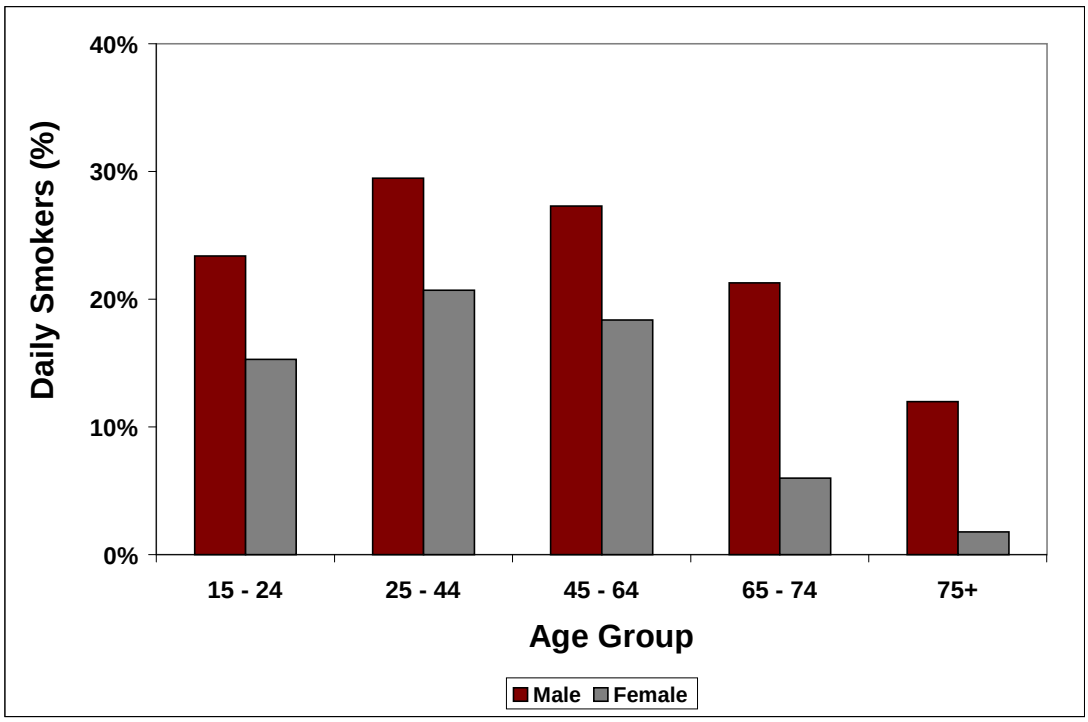


Figure 2.4.1: Prevalence of daily smokers by gender
Source: HIS 2008

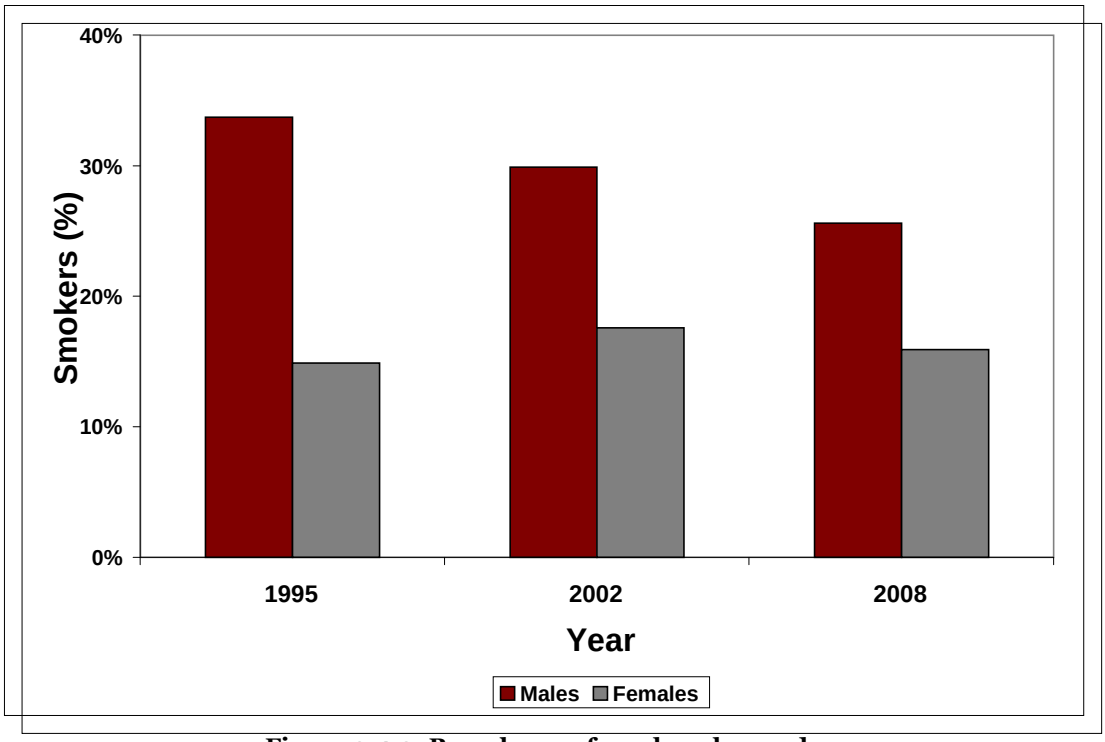


Figure 2.4.2: Prevalence of smokers by gender
Source: 1995 CINDI, HIS 2002, 2008

Although the prevalence of smoking in males is higher than females, the percentage of male smokers seems to be decreasing. The proportion of female smokers has increased between 1995 and 2002, but now seems to have stabilized.

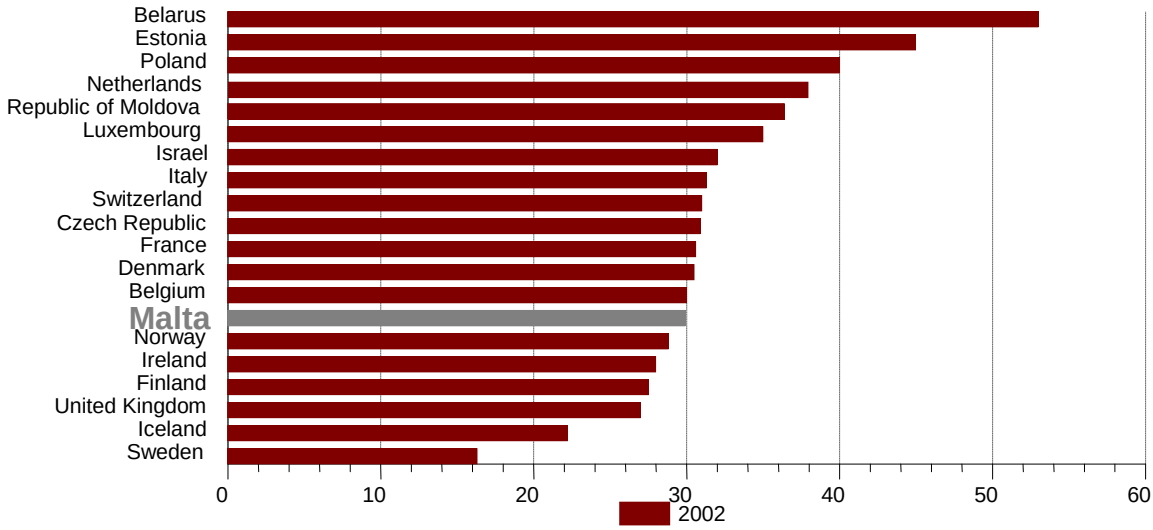


Figure 2.4.3: Ranking of % daily smokers aged 15+ in Europe, males
Source: HFA-DB

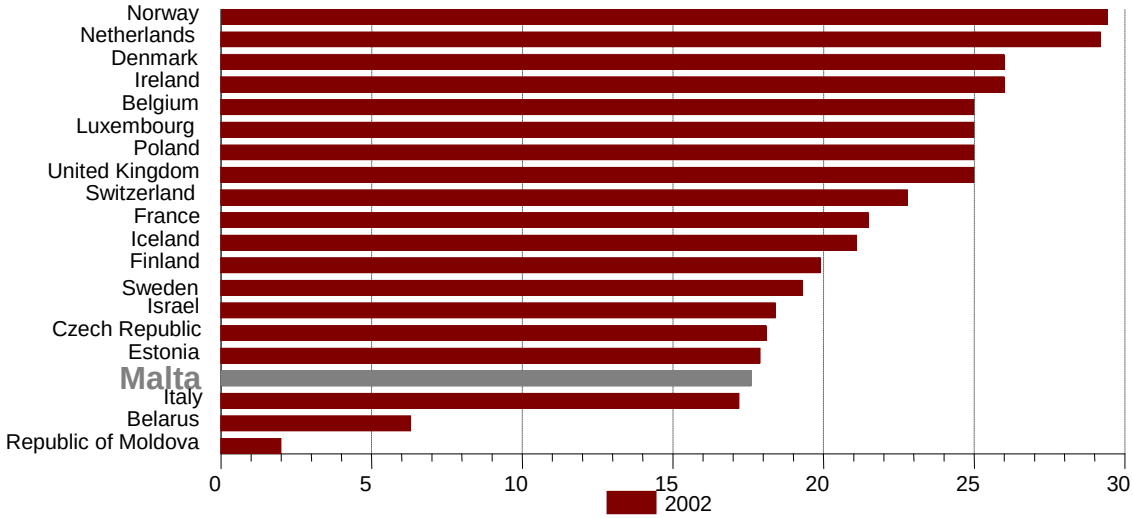


Figure 2.4.4: Ranking of % daily smokers aged 15+ in Europe, by females
Source: HFA-DB

In the 2007 ESPAD study, conducted among Form 5 students, 26% of males and 26% of females reported smoking cigarettes in the past 30 days. 3.4% of children have their first cigarette when less than 9 years old and the age at which the highest number of children smoked their first cigarette is 14 years.

In the 2006 HBSC survey, the proportion of 16 year old girls that reported to have smoked 40 times or more in the previous month was 9.6% which surpassed the percentage of boys who smoked which stood at 7%.

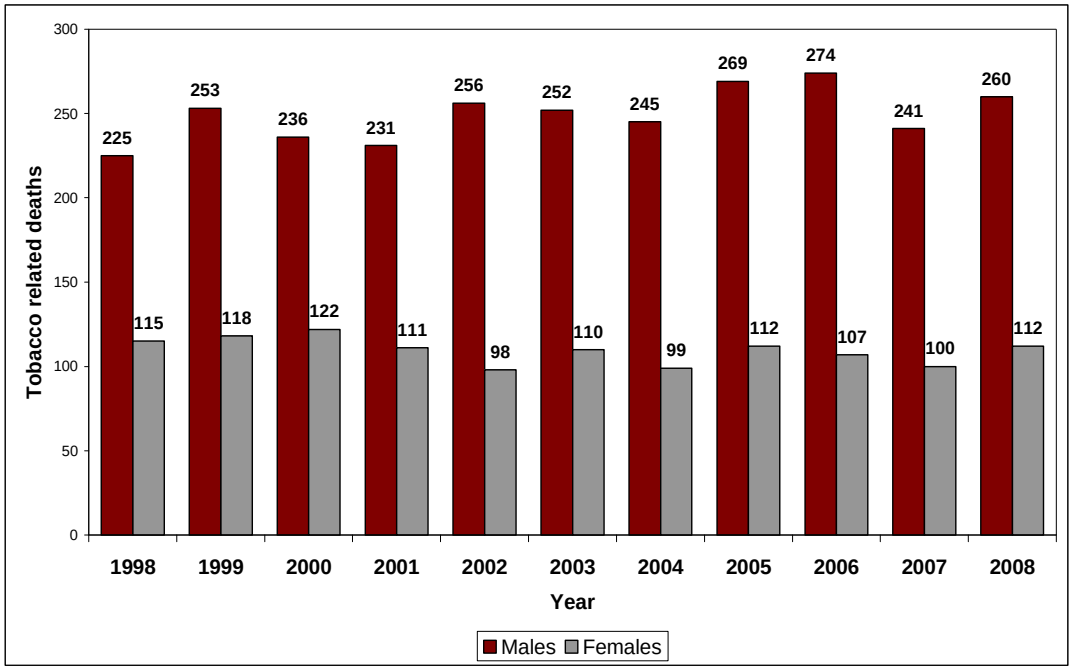


Figure 2.4.5: Number of deaths in Malta related to smoking by gender
Source: National Mortality Registry

The number of male tobacco related deaths is more than twice that in females. However, the tobacco related deaths in females is expected to rise in the next decades with the increase in female smokers.

Pregnancy

The smoking status of mothers at term or late pregnancy is routinely collected onsite by staff and is entered at the Department of Health information and Research (DHIR) in a national register; the National Obstetric Information System (NOIS). A study carried out in 2008 amongst mothers identified as smokers showed that 4.4% stopped smoking prior to conception, 50.2% stopped smoking immediately once they got to know they were pregnant, 8.8% stopped smoking later in their pregnancy, 4% stopped and started smoking again in the third trimester while 32.6% continued to smoke throughout their pregnancy (Agius A, 2009). The overall prevalence of mothers smoking throughout pregnancy in this study was 11% which contrasts with the NOIS figure which stood at 5.3%.

Tobacco Exposure

Malta was in the forefront in putting legislation in place through the Smoking in Public Places and the ban on advertising and promotion of Tobacco product regulations (LN of 406 of 2005). It is now imperative that the momentum gained be directed towards continuing the downward trend in the number of smokers and ensuring that less young people initiate smoking. This is why recently two new regulations have been published;

a) L.N. 23 of 2010 Smoking in public Places Regulations in order to improve the previously existing regulation L.N. 414 of 2004; and

b) L.N. 22 of 2010 Products and Smoking Devices (Simulating Cigarettes or Tobacco) (Control) Regulations 2010 in order to regulate this sector

In the 2008 Health Interview Survey, 38.7% of males and 26.0% of females reported to have been exposed to tobacco in public places and transport as well as at work. One must note that the figures include smokers who have been exposed to secondary smoke. This data indicates that although smoking has been banned in public places since 2004, infringement of the law is still rampant and the need for more enforcement is felt.

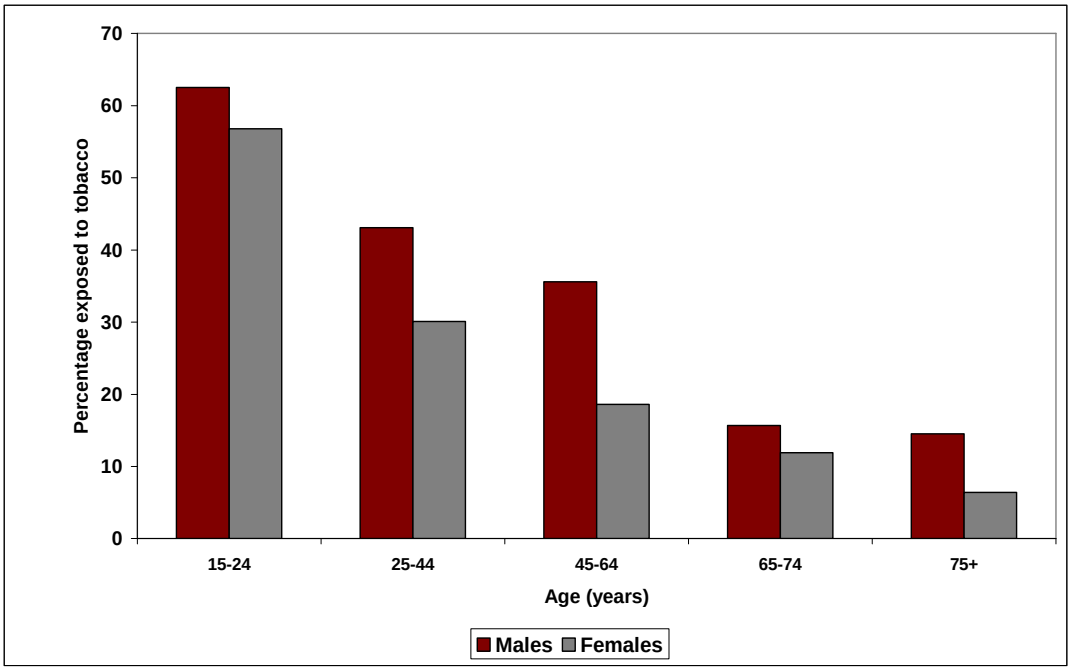


Figure 2.4.6: Tobacco exposure at work and in public places and transport
Source: HIS 2008

Strategy Targets for 2020

To reduce tobacco-related disease and deaths among the Maltese population by reducing the number of people who smoke by 5%.

In 2008 the number of smokers in Malta was around 20%. Our target is to reduce this number to 15% with a special emphasis in the educational sector and youths.

To reduce the number of adolescents (16 years) who take up regular smoking by 4%.

Evidence suggests that smoking in 16 year olds, particularly females is on the increase. Smoking more than 40 times during the previous month is considered to be regular smoking.

To reduce passive smoking by 50% of current levels by enforcement of current legislation on smoking in public places (LN 203/2004) and through education about domestic passive smoking.

Passive smoking was reported by 45% of the Maltese population in the Health Interview Survey 2002.

Strategies

The promotion and education on healthy lifestyles is an ongoing process and as a consequence, awareness in the workplace has been introduced. The promotion of good practice and no smoking culture have already been carried out with the aim of improving and enhancing the working environment.

The Strategies formulated to reduce disease, disability and premature death in the general population by motivating current smokers to quit the habit and the younger generation not to take up smoking are as follows:

- To review present health promotion activities
- To sustain a smoke-free indoor environment including the workplace and public places which are enclosed as per LN 23 of 2010 (Smoking Act)
- To insert pictorial warnings on tobacco products to convey health messages by mid 2011 as per L.N. 302 of 2009 (Smoking Act)
- To sustain annual increases in tobacco tax at above the rate of inflation for health education purposes
- To prevent effectively the sales of tobacco products to under 18 year old individuals
- To increase enforcement of the legislation in public places (LN 203/2004).
- To sustain information campaigns aimed at the public in general, and at specific audiences within educational environments.
- To encourage the cessation of smoking through campaigns such as

- Quit & Win campaign which is held every two years and encourages adult smokers to quit
- Support HELP campaign that encourages younger smokers to stop smoking

- To enhance the Smoking Cessation Clinics which offer a service to help people quit smoking by training and improvement of the referral system.
- To encourage more participation in the Smoking Cessation Clinics by facilitating access to participants.
- To enhance the Quitline services.
- To ensure that children and adolescents do not initiate smoking through effective school based learning and campaigns in collaboration with teachers and community based campaigns to enforce the work being done in schools.
- Restricting the availability of cigarette vending machines
- Restricting the availability of tobacco products to young people by increasing and enforcing distance zones round educational facilities where tobacco be retailed
- To build health alliances with GPs and other health professionals on a local and international basis through external agencies including the WHO and the European Network for smoking prevention (ENSP).
- Training of Health Care providers to work in collaboration with the health promotion unit.
- Hospital based smoking cessation clinics for health care workers
- Education campaigns targeted at pregnant women should be enhanced. Such campaigns should underline the risks of smoking in pregnancy and the newborn infant.

2.5 Alcohol

Key Target – Health Vision 2000
Discouraging heavy drinking (more than 2 units alcohol per day or more than 4 units on any one occasion)

From a public health perspective, there are two particularly important aspects of alcohol consumption to be aware of; namely the total consumption of alcohol and the drinking patterns. This change in focus from total consumption originates from increasing evidence over the decades that both drinking patterns and total consumption have substantial consequences for many health conditions.

Excessive consumption of alcohol may lead to social and health harm, both to the drinker and to others. Some harms such as injuries are immediate while others are more long-term. The latter include cumulative damage to family or work life or social position, or chronic damage to health. As a psychoactive substance, alcohol also produces immediate effects on mood, motor function and thinking processes. There is considerable individual variation in the effects of alcohol consumption since the metabolism and pharmacodynamics of alcohol varies between persons. These individual differences affect alcohol-induced toxic and behavioural effects, drinking

behaviour, the potential for the development of alcohol dependence, and the risk for alcohol-induced organ damage (WHO, 2007).

In some EU member states, the death rates for cirrhosis of the liver have increased markedly in the past two decades. Scientific evidence has shown the link between alcohol consumption and the development of high blood pressure.

Local Statistics

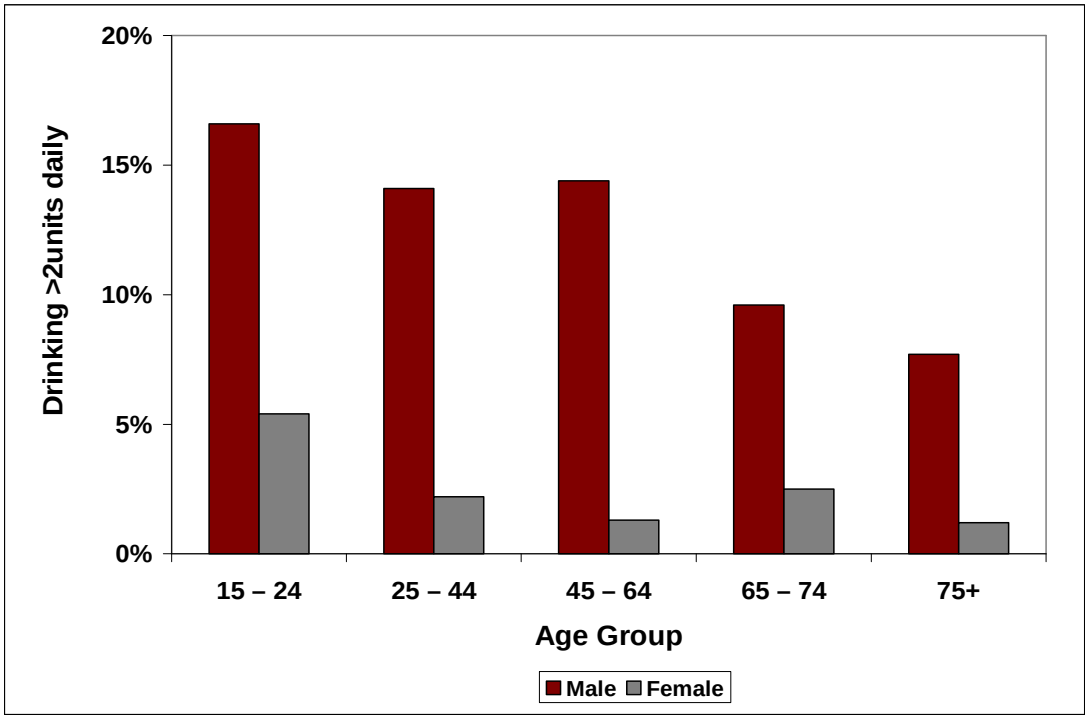


Figure 2.5.1: Percentage of respondents drinking >2 units of alcohol daily
Source: HIS 2008

The HIS 2008 survey showed that 13% of the male and 3% of the female respondents drink more than 2 units of alcohol per day. These figures show a decline when compared to the same survey conducted in 2002.

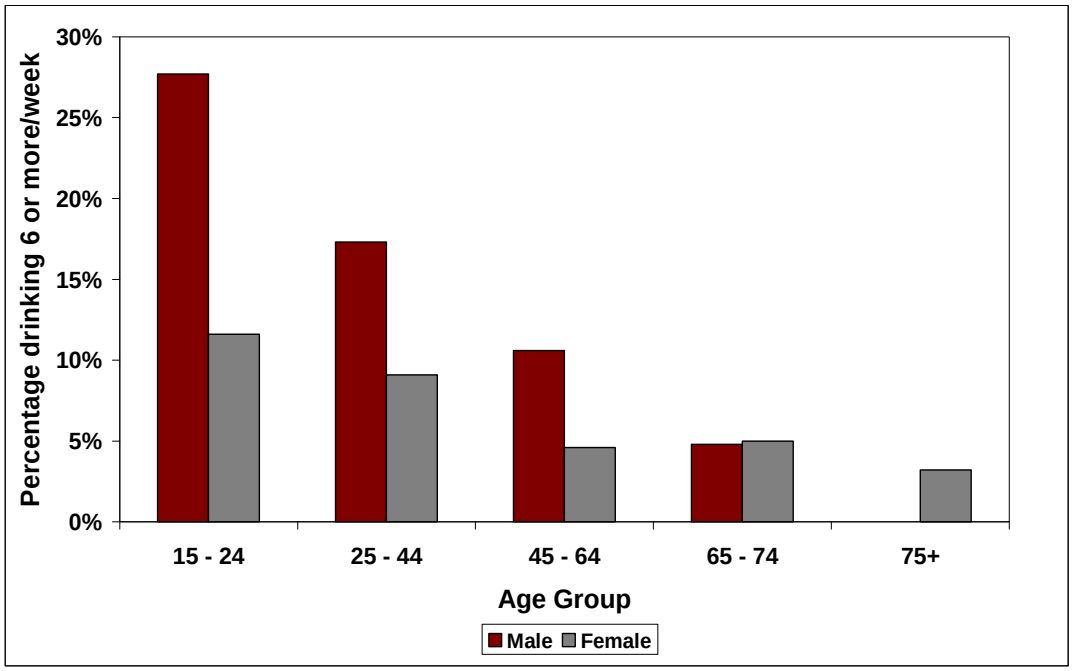


Figure 2.5.2: Percentage drinking 6 or more drinks on one occasion weekly during the past 12 months
Source: HIS 2008

To assess excessive irregular drinking, the HIS 2008 respondents had to report whether they drank six or more drinks on one occasion during the previous month or on a weekly basis. Results show that 13.4% of the males surveyed reported excessive drinking at least once a month, while 15.1% drank excessively once a week. Rates in females were considerably lower, with 9.8% reporting consumption of 6 or more drinks on the same occasion at least once a month, while 7.6% consuming the same amount of alcohol on a weekly basis. This drinking pattern is most popular with the youngest age group, with the rate among males being twice that in females. This gender disparity is evident in all age groups.

The 2007 ESPAD study on 15-16 year olds reports that 82% used alcohol in the previous 12 months and 38% (40% boys, 36% girls) got drunk in the previous 12 months. 62% of boys and 52% of girls admitted to episodic drinking during the previous 12 months.

The Health Behaviour in School-Aged Children Study (HBSC) carried out in 2006 also illustrates a high consumption of alcohol among 13- and 15- year olds and shows an increase over the results obtained in 2002. The 2006 results show that among 15-year olds, 39% of girls and 51% of boys binge drink. These figures are the second highest in Europe for both genders and are a cause for concern. However, it must be noted that the study was carried out before the introduction of the Underage Drinking Legislation.

As to road traffic regulations, legislation has been introduced allowing police to perform a breathalyzer test. This test can only be conducted on individuals whose way of driving is suggestive that they might be under the influence of alcohol. The blood alcohol limit for driving in Malta is of 80mg/dL. The HIS 2008 survey showed that 7.71% of individuals drive after drinking more than four drinks and 3% drive after taking three to four drinks. This situation needs to be addressed as driving under the influence of alcohol is dangerous not only for the driver and passengers in the same car but also on other drivers and pedestrians.

Strategy Targets for 2020

To reduce the frequency of being drunk during the previous month among 16 year olds and younger by 5% in both boys and girls.

To reduce the number of people who drive after taking more than three drinks from the current level of 10.8% to 4%

The drafting of a National Alcohol Policy is at a very advanced state. However, some strategies have been highlighted which will be further expanded in the National policy.

Strategies

The Strategies formulated to reduce alcohol intake in the general population are as follows:

- An inter Ministerial working group is to be set up to monitor, plan and implement the national alcohol strategy.
- To amend drinking – driving legislation:
  - By decreasing the blood-alcohol level limit at which one can drive from 80 mg/dL of blood to 50 mg/dL.
  - In drivers less than 21 years of age the blood alcohol level should be zero.
  - A wider discretion to law enforcers to perform breathalyser test.
  - It is advisable to increase the underage drinking law, in all its implications to 18 years of age.
- Prohibition of the sale of alcohol from hospital
- Alcohol should have health warnings shown clearly on the bottles or at least a message to 'drink responsibly'
- To increase awareness on harmful effects of alcohol
- To quantify alcohol consumption in pregnancy with a view to promoting abstinence from alcohol in pregnancy
- Advertising of alcohol has to be regulated and include an advertising ban in the presence of children and activities aimed at children
- Sponsoring of activities aimed at children and young people by the alcohol industry in whatever form should be banned altogether.
- Enhancing health promotion activities

2.6 Obesity

Key Target – Health Vision 2000

1. By the year 2005 there should be a change in the weight distribution for men and women under 35 years as shown in the following table:-

Men (=< 35 yrs)	**% having desirable weight**	**% being overweight**	**% being obese**
Situation in 1985 Target 2005	41 45	45 45	14 10
Women (=< 35 yrs)			
Situation in 1985 Target 2005	55 60	30 30	15 10

2. By the year 2005 there should be a change in the weight distribution for men and women over 35 years as shown in the following table:-

Men (> 35 yrs)	**% having desirable weight**	**% being overweight**	**% being obese**
Situation in 1985 Target 2005	27 40	47 40	26 20
Women (> 35 yrs)			
Situation in 1985 Target 2005	25 31	32 31	43 38

3. By the year 2005 the proportion of children under 10 years who are above the 97th percentile of the WHO reference weight for height should be no more than 5%.

4. By the year 2005 the proportion of children above 10 years who are above 120% of the Baldwin reference weight should fall by at least 15%.

Obesity presents the European region with an unprecedented Public Health challenge. The prevalence of obesity is rising at a very rapid rate and it is projected that 150 million adults and 15 million children will be obese by the current year (2010).

Definitions

In adults, excess body weight is defined as a body mass index (BMI) >=25 kg/m^2. Obesity is defined as a BMI>=30 kg/m^2; pre-obese (overweight) is used to define adults with a BMI of 25.0-29.9 kg/m^2. For children, the use of the WHO Child Growth Standards is advised for assessing the prevalence of obese or overweight children.

Overweight and obesity are responsible for about 80% of cases of type 2 diabetes, 35% of ischaemic heart disease and 55% of hypertensive disease among adults in the European Region. Moreover, overweight and obesity would cause more than 1 million deaths and 12 million life-years of ill health each year (WHO, 2007).

Economic and Health Costs

Obesity imposes an economic burden on society through increased medical costs to treat the diseases associated with it (direct costs), lost productivity due to absenteeism and premature death (indirect costs). In the European Region, the direct health care costs of obesity account for 2-4% of national health expenditure. The indirect costs could amount to twice those for direct costs.

Obesity has considerable effects on morbidity and mortality. Type 2 diabetes and cardiovascular diseases, such as myocardial infarction and ischaemic stroke, are the two most important non communicable disease outcomes of obesity. Obese individuals are at a higher risk of developing cancer, gallstones, narcolepsy, and increased use of long-term medication, hirsutism, impaired reproductive performance, asthma, cataracts, benign prostatic hypertrophy, non-alcoholic steatohepatitis and musculoskeletal disorders.

The burden of disease attributable to excess BMI among adults in the European Region amounted to more than 1 million deaths and about 12 million life-years of ill health in 2000. Moreover, obesity reduces life expectancy.

The health consequences of overweight for children during childhood are less clear. Systematic review shows that childhood obesity is strongly associated with risk factors for cardiovascular disease and diabetes, orthopaedic problems and mental disorders. Also, many obesity-related health conditions once thought to be applicable only to adults are now being seen among children and with increasing frequency. Examples of these include high blood pressure, early symptoms of hardening of the arteries, type 2 diabetes, non-alcoholic fatty liver disease, polycystic ovary disorder and disordered breathing during sleep.

Determinants of Obesity

Obesity results from an imbalance between energy intake and energy expenditure.

The modern food environment provides a wide range of opportunities to consume food and drink products, commonly leading to what has been described as 'passive overconsumption'. Studies show that the consumption of very energy-dense diets and energy-rich drinks such as sugary drinks are the main factors conducive to this inadvertent overeating. This coupled with insufficient physical activity lead to obesity (WHO, 2007).

Local Statistics

Malta is reported to have one of the highest overweight problems in Europe. The Health Behaviour in School-Aged Children (HBSC) study found an alarmingly high proportion of Maltese children to be overweight. In fact around 15% of 13-year olds are above the 95th weight centile. Moreover, the recent European Association for the Study of Obesity found Malta to have the second highest proportion of obese 18 year-olds in Europe.

The IOTF shows that over 35% of children in the 7-11 year age group in Malta are overweight or obese. A study on 6 -7 year olds carried out in 2008, found 31.9% of males and 31.9% of females to be overweight and obese (ECOSI Malta 2008).

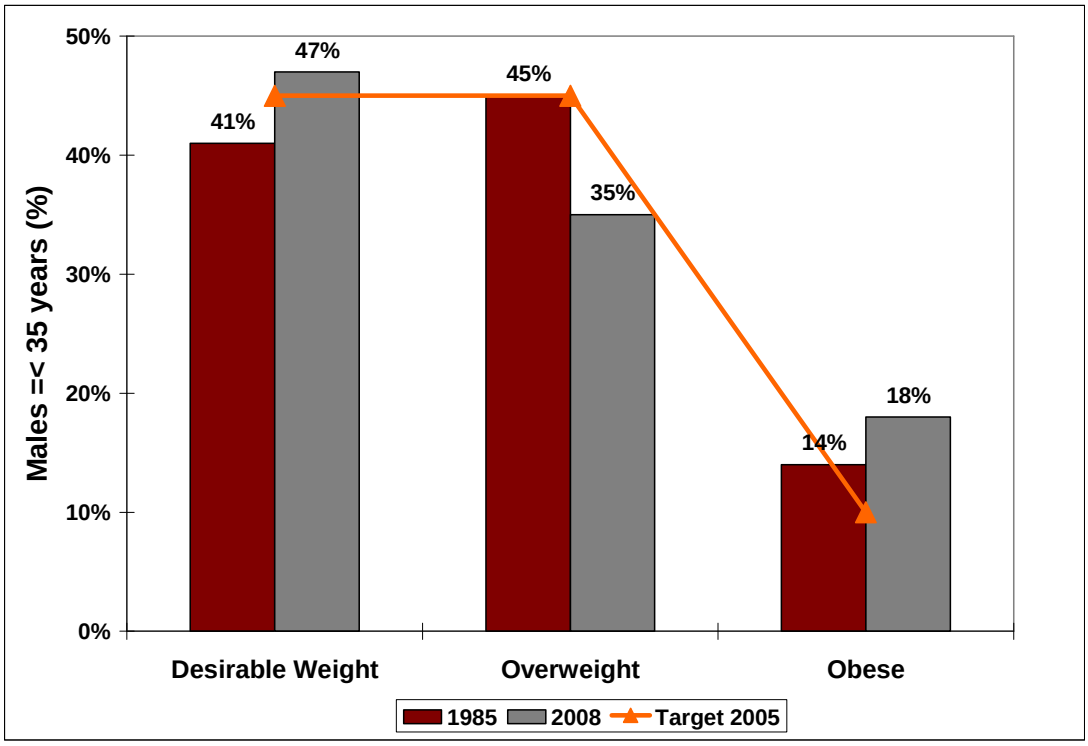


Figure 2.6.1: Actual and projected BMI males =<35 years
Source: MONICA 1985, HIS 2008 and Health Vision 2000 targets

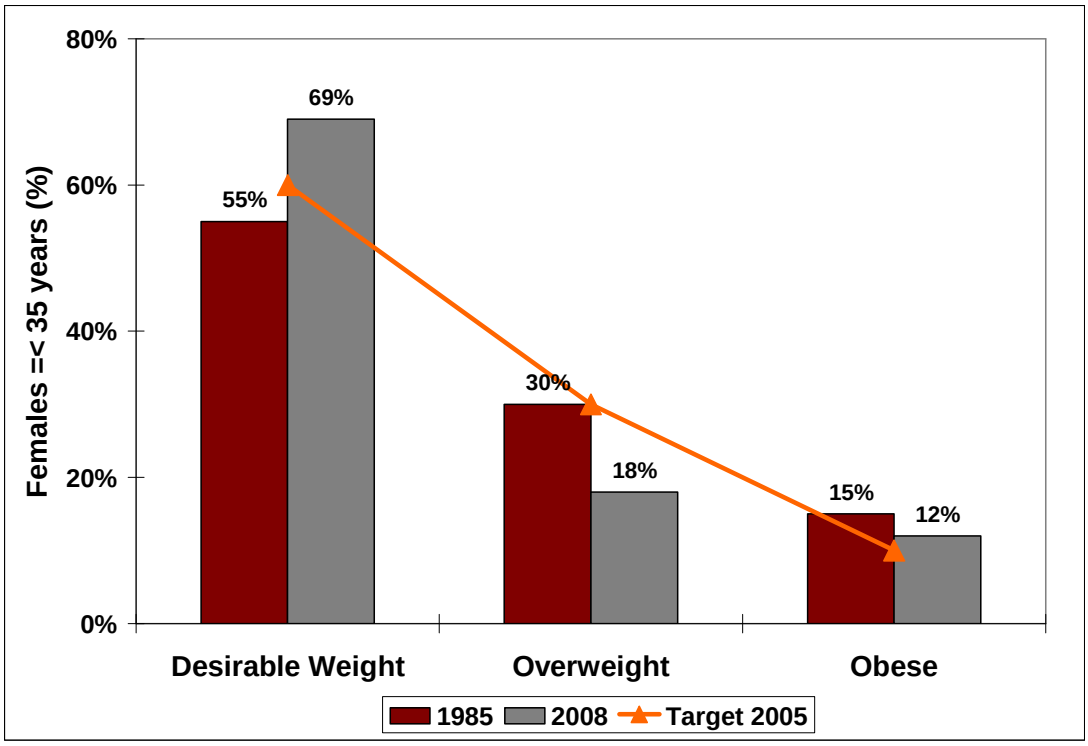


Figure 2.6.2: Actual and projected BMI females =<35 years
Source: MONICA 1985, HIS 2008 and Health Vision 2000 targets

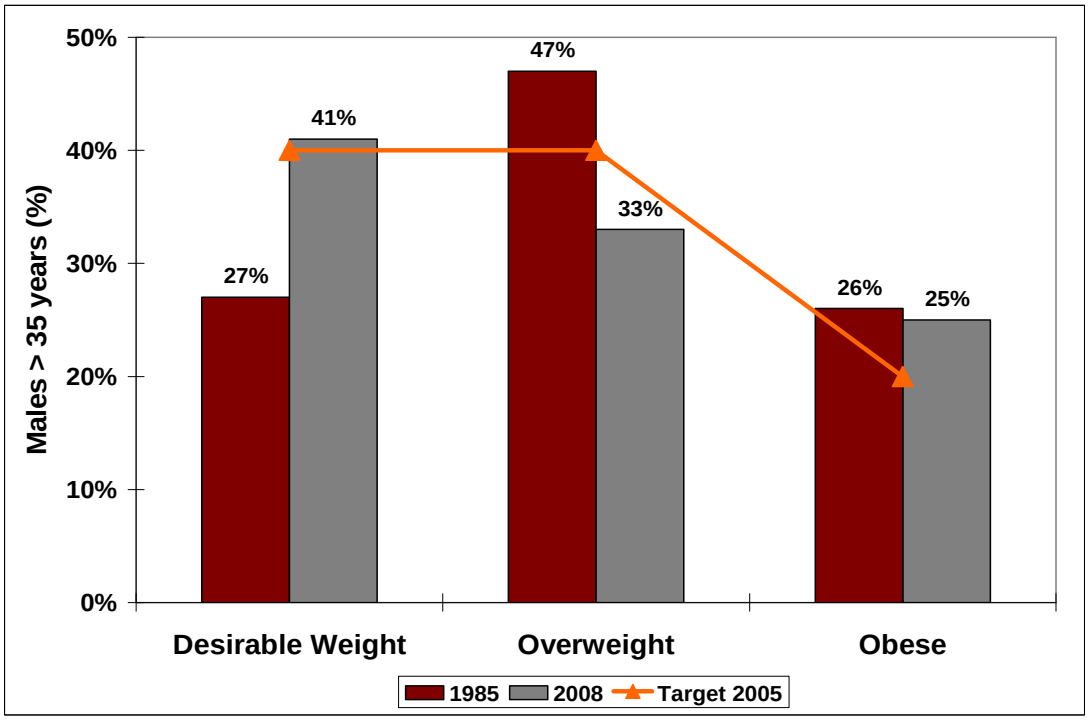


Figure 2.6.3: Actual and projected BMI males >35 years
Source: MONICA 1985, HIS 2008 and Health Vision 2000 targets

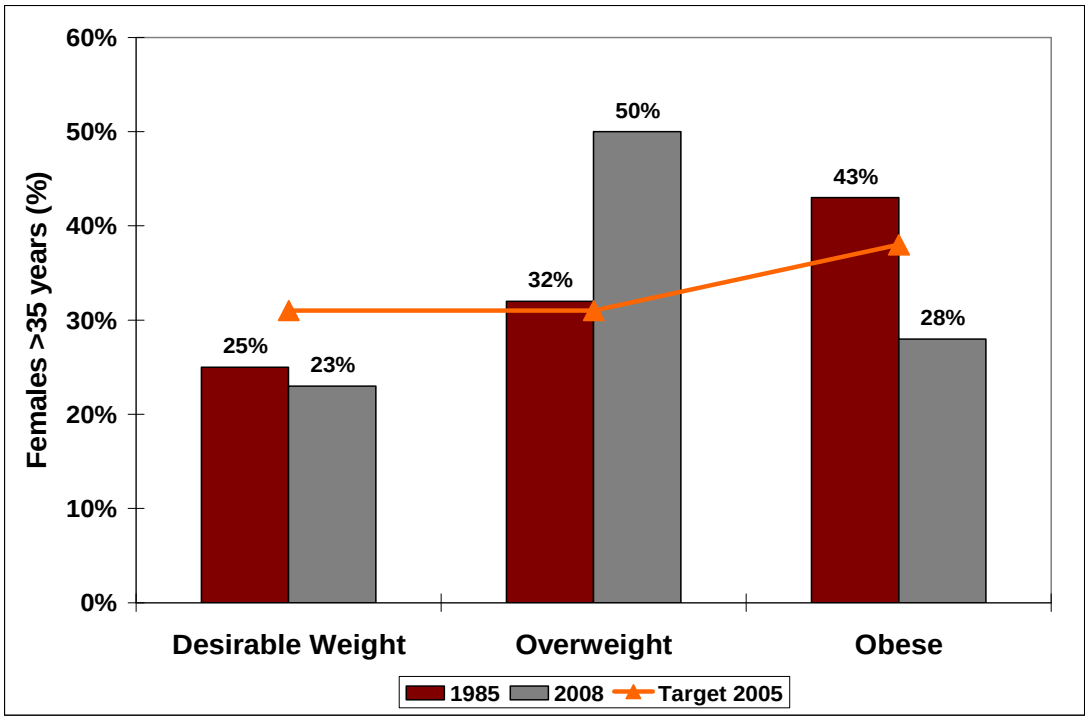


Figure 2.6.4: Actual and projected BMI females >35 years
Source: MONICA 1985, HIS 2008 and Health Vision 2000 targets

The Health Vision 2000 policy document had set out targets on BMIs that had to be achieved by the year 2005. The data obtained from the 1985 MONICA Study is anthropometric while that from the 2008 HIS survey is self reported and so the latter tends to give lower BMI values. Thus comparisons between the two studies may only be done with caution. However, since this is the only available data, it is being presented. When analysing the results (figures 2.61 to 2.64), one notices an increase in BMI with age in both genders. In males of both age groups, a higher proportion had a desirable BMI in 2008 when compared to the 1985 figures. In females, an improvement was observed in the younger age group (=<35 years of age) but not in the older age group (>35 years). The targets set for desirable BMI have been reached for all the above categories except for females over 35 years of age. However, on a positive note, the prevalence of obesity in females in this age group has declined by 15% over this period of time.

Strategy Targets for 2020

To maintain the percentage of 13 year olds above the 95th weight centile below 15%

The WHO European Ministerial Conference on Counteracting Obesity (2006) set out curbing the epidemic and reversing the increasing trend in obesity as the ultimate goal of action in the European Region. Visible progress, especially relating to children and adolescents, should be achievable in most countries in the next 4–5 years and it should be possible to reverse the trend by 2015 at the latest.

To reduce the prevalence of obesity in the Maltese population over the age of 15 years from 22% to 18%

An improvement of BMI in females has been noticed. However, obesity prevalence rates are still high and are predicted to increase so the problem must be tackled efficiently .

Actions

The national problem of obesity needs to be addressed not only at the individual level but also at a population perspective. Quality care and support is to be provided to the overweight and obese individuals but actions also need to be effected at the wider societal level. The latter goes beyond the provision of services or health screening programmes but more importantly it is achieved through intersectoral collaboration and participation of key stakeholders that directly or indirectly contribute to the obesogenic environment of the Maltese islands.

To this aim an Intersectoral Committee on Obesity (ICCO), chaired by the Director General Public Health Regulation within the Ministry of Health, the Elderly and Community Care, was set up in 2007. The key stakeholders in this committee represent the key sectors whose policies influence food consumption trends and opportunities for daily physical activity including the Ministry of Education, Ministry of Agriculture, Malta Environmental and Planning Authority (MEPA), Transport, Finance, Broadcasting Authority and Malta Hotels and Restaurants Association (MHRA).

Strategies

Other actions that are formulated to reduce the prevalence of overweight and obesity in specific age groups across the population are as follows:-

- To sustain weight management campaigns targeted at all age groups, with a special emphasis on children and adolescents, and to specifically target the male population.
- To inform health care workers and family doctors of national targets for weight loss and to establish a robust a referral system to ongoing programmes.
- To involve general practitioners in the community in obesity prevention efforts.
- To encourage weight management advice in private entities.
- To encourage an increase in physical activity by identifying and facilitating activities which are more appealing to the specific age and gender groups (Refer to Physical Activity Chapter 2.3) .
- To ensure that women are at their desirable weight before pregnancy.
- To ensure that pregnant women are given consistent dietary advice to maintain optimal weight gain throughout pregnancy

- To work with the School Health Services and the Education Authorities to impart dietary advice to school children. The medical team is to advice on who is obese and who is overweight and to refer accordingly for help
- To advocate programmes that encourage the availability and consumption of healthier foods and increase in physical activity for school children and adolescents in school canteens and sports clubs
- To decrease weight gain in overweight children whilst they are growing with the aim of reaching normal weight-for-height at age 12 through routine surveillance by the school health team
- To monitor the weights and heights of children from age 3 to 16 every year and follow up with appropriate advice. Such monitoring and advice should be dispensed in the most appropriate manner to avoid the risk of increased bullying
- To hold anthropometric studies of BMI and waist circumference in adults.
- To provide schemes that enable appropriate management for the obese as early as possible to avoid co-morbidities.
- To secure a national sustainable food action plan as well as a national food and nutrition policy that will primarily address food choice and supply for those at risk of obesity and addressing inequalities in this area.

2.7 Raised Blood Sugar

Key Target – Health Vision 2000

1. **By the year 2000, the prevalence of non-insulin dependent diabetes in those aged 34 and over should be reduced to not more than 7.5% and of IGT should be reduced to no more than 9%.**

This target was not achieved by the year 2000. The prevalence of Type 2 Diabetes in adults aged 34 and over in 2008 (HIS) was estimated to be 11%. The prevalence of IGT is not known.

2. **To reduce the prevalence of complications of diabetes in line with the St Vincent declaration:**
   - **Reduce new blindness due to diabetes by one third or more.**
   - **Reduce by one half the rate of limb amputation for diabetic gangrene.**
   - **Achieve a pregnancy outcome in diabetic women that approximates to that of non-diabetic women.**
   - **Reduce the numbers of people entering end-stage diabetic renal failure by at least one third.**
   - **Reduce morbidity and mortality from coronary artery disease in people with diabetes by vigorous programmes of risk factor reduction.**

No evidence is available to evaluate the above complications. However, an audit of obstetric data carried out in 2002 found no significant difference between diabetic and non-diabetic pregnancies in terms of the rate of birth defects or Apgar scores (Calleja, 2002).

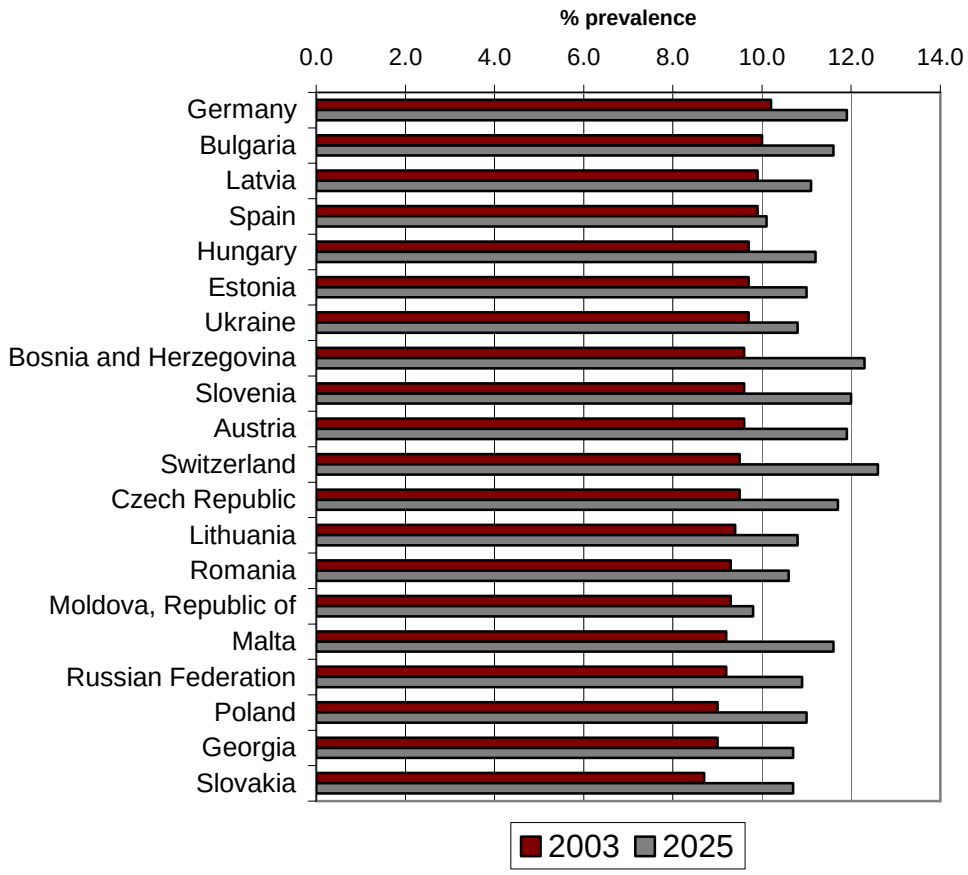


Figure 2.7.1: Prevalence of diabetes in the top 20 countries in Europe, 2003 & 2025

Local Statistics

Statistics show that the percentage prevalence of diabetes among those aged between 20 and 79 years in Europe is 7.8%. The graph above shows the top 20 countries amongst 51 European nations. In 2003, Malta ranked 16th with a prevalence of 9.2%. However, this rate is expected to rise to 11.6% by 2025 ranking Malta as the 9th highest country in Europe.

Strategy Targets for 2020

To limit the prevalence of persons with diabetes among those aged 34 years and over to 10%

Self-reported prevalence figures for 2008 (HIS) stand at around 11%. This is known to be on the increase and is projected to rise to 11.6% by 2025. Therefore arresting this increase would be very beneficial.

Strategies

Strategies aimed at reducing the prevalence of Type II diabetes and its complications in the general population include:

- To promote healthy diets and lifestyle in schools (including children, teachers and parents) thereby reducing obesity and preventing Type II diabetes.
- To provide education on healthier lifestyles to the general population.
- To promote the intake of foods with low GI index in the general population.
- To screen pregnant women for abnormal glucose tolerance.
- To lower the prevalence of overweight especially in those with a history of first degree Type II diabetes.
- To improve the level of education and improve self-management in persons with Type II diabetes.
- To ensure reduction of excessive weight in persons with Type II diabetes by loss of excess weight achieved by following a controlled energy diet low in fat, sugar and alcohol
- To provide relevant education to health care professionals (especially family doctors) on how to provide advice to patients on healthy lifestyles as part of their Continuing Professional Development programme.
- To facilitate the provision of free blood glucose monitoring equipment where necessary (now provided free to persons with type I diabetes up to age 35 years).
- To continue the early pick-up of persons with diabetes to decrease morbidity, mortality and the high costs of advanced diabetes management.
- To reduce smoking prevalence among persons with diabetes.
- To encourage exercise among persons with diabetes with individualised education on how to avoid hypoglycaemia.
- To maintain the health and quality of life of persons with diabetes through effective education and patient care by
    - Ensuring optimum glycaemic control
        - Dietary and lifestyle change
        - Exercise
        - Medication
    - Prevention of microvascular complications
        - Control of glycaemia
        - Control of blood pressure
        - Monitoring and screening
    - Prevention of coronary heart disease and macrovascular complications
        - Control dyslipidemia
        - Dietary and lifestyle changes including hypertension control and smoking reduction

2.8 Raised Blood Pressure

Key Target – Health Vision 2000

1. **By the year 2005, the diastolic blood pressure distribution in the general population should be reduced by 10mmHg. This could result in a 30% decrease in total attributable mortality.**

No evidence available on whether this target was achieved.

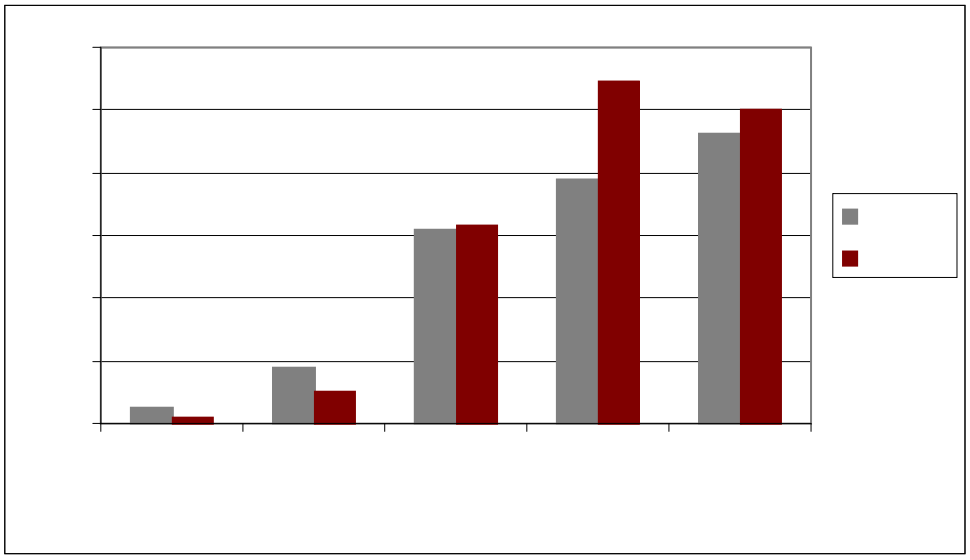


Figure 2.8.1: Self-reported hypertension in the Maltese community
Source: HIS 2008

High blood pressure is a major public health problem. It is increasingly recognised that hypertension control should form part of an overall effort to control the risk of CVD, i.e. one that also addresses other risk factors that might be present, such as smoking, abnormal blood lipids and obesity. Epidemiological studies show that essential hypertension, while being a chronic disorder in itself, also acts as a risk factor for circulatory complications. The menstrual cycle also acts as a protective factor against hypertension and other circulatory diseases.

Local Statistics

The Health Interview Survey of 2008 showed that seventy two percent (72%) of the surveyed population reported checking their blood pressure at least once in the previous 12 months. The overall self-reported prevalence of hypertension in Maltese women is 23% and 22% in men. Whilst hypertension is slightly more prevalent among males younger than 44 years when compared to females of the same age, among middle aged individuals, hypertension affects males and females similarly. In the older age groups, hypertension rates in females rise dramatically to exceed the prevalence in males. The increase of self-reported hypertension in females shown in Figure 2.8.1 is probably explained by that due to the onset of the menopause The MONICA Survey carried out 30 years ago is the last population study which documents the prevalence of hypertension in Malta.

Strategy Targets for 2020

The prevalence of self-reported hypertension in Maltese adults should be reduced by 3%.

The reported prevalence of self-reported hypertension in the Health Interview Survey 2008 was of 22%. The prevalence for 2020 should be around 19%.

Strategies

The strategies formulated to *lower* the incidence of raised blood pressure in the population include:

- Encouraging a general reduction in salt intake
- Permanently reducing weight to a Body Mass Index (BMI)* of less than 25 in those already diagnosed as hypertensive

The strategies formulated to *improve* blood pressure control so as to reduce mortality and morbidity from coronary artery disease and stroke is as follows:

- Discouraging heavy drinking (more than 2 units of alcohol per day or more than 4 units on any one occasion) especially in those already diagnosed as suffering from hypertension
- Improving the existing services for screening, surveillance and treatment of raised blood pressure especially the services being delivered at primary health care
- Increasing health literacy of the general population especially related to raised blood pressure and the appropriate use of preventive and curative services
- Encouraging an increase in exercise by the general population and especially in newly-diagnosed hypertensive adults who should increase their energy expenditure to the equivalent of 3 hours physical activity per week
- Encourage self monitoring of blood pressure under the supervision of a health care professional
- Encourage compliance with advice and treatment.

2.9 Raised Serum Cholesterol

Key Target – Health Vision 2000

1. **By the year 2005, the serum cholesterol level in the general population should be reduced by 1% from the present level.**

No evidence available

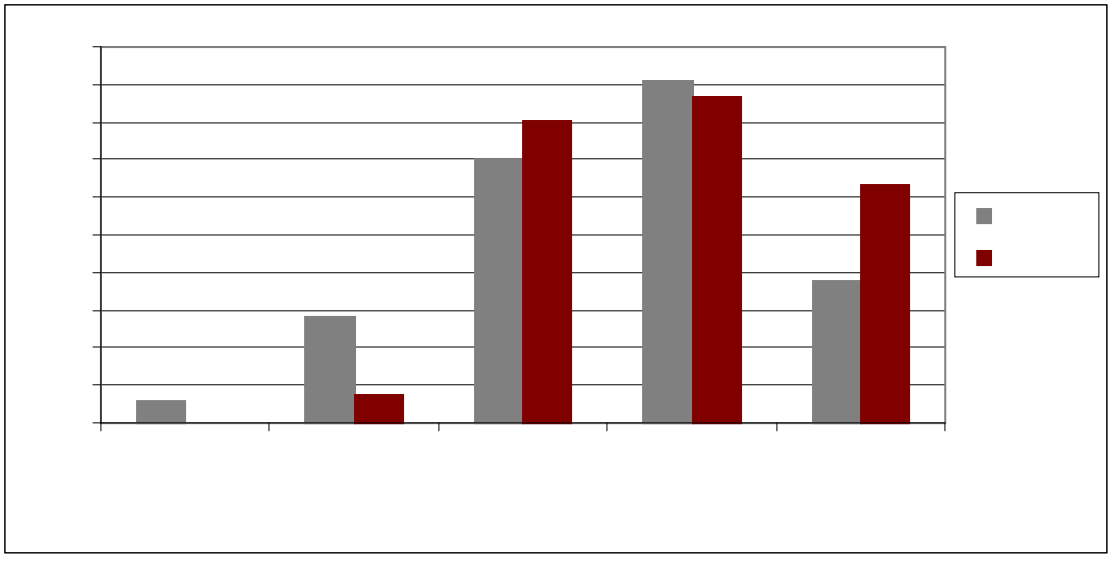


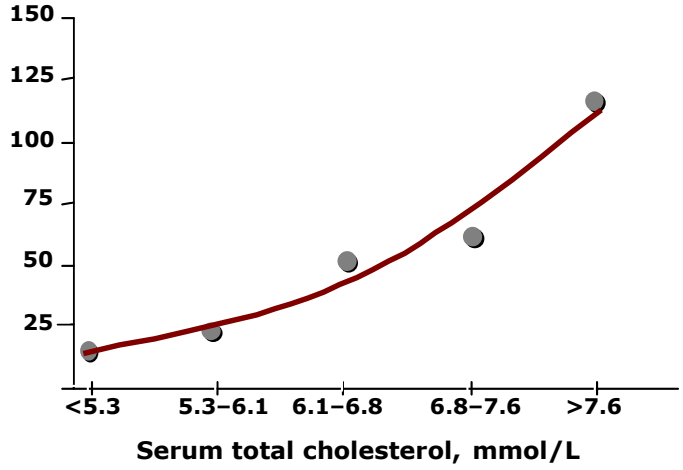
Figure 2.9.1: Self-reported hypercholesterolemia in the Maltese population (HIS: 2002)

Local Statistics

Statistics show that hypercholesterolemia is a common condition in the Maltese population. Around 52% of the surveyed population reported checking their blood cholesterol level at least once in the past three years. The distribution of affected individuals follows a very similar pattern to that of hypertension. According to the latest data available (HIS 2002), the overall prevalence of self-reported hypercholesterolemia in men and women is 9%.

Background Information

The Framingham study established the curvilinear relationship between rising levels of serum cholesterol and increasing incidence of coronary heart disease (CHD). These results were replicated in various European studies. However there is a large overlap between people with high cholesterol who die and do not die of CHD. The best predictors of higher cardiovascular risk is a combination of age, gender, hypertension, smoking, total cholesterol and a history of previous cardiovascular disease. SCORE charts are used to estimate cardiovascular risk in the primary care setting (Heartscore).



Adapted from Castelli WP. *Am J Med* 1984;**76**:4–12

Figure 2.9.2: Relationship between Cholesterol and CHD risk

Strategy Targets for 2020

To reduce the self-reported prevalence of hypercholesterolemia by 2%.

Hypercholesterolemia was reported by 9% of the Maltese adult population in 2002. By 2020, this prevalence should be down to 7%.

To encourage Maltese adults with a family history of heart disease, high blood pressure or stroke to start monitoring their blood cholesterol levels at least biannually if on treatment, or once annually if not on treatment.

Screening of the whole adult population is not recommended. However, the American Heart Association recommends screening high risk individuals for hypercholesterolemia.

Strategies

The strategies formulated to lower the raised serum cholesterol of the population so as to reduce mortality from coronary artery disease and stroke are as follows:

- Lifestyle modification advice should be offered to children, their teachers and families within the school setting.
- Ensure the achievement of targets set in the Nutrition and Physical Activity sections of this Strategy.
- Establish guidelines to ensure that consistent dietary advice is given to individuals with high serum cholesterol.
- Ensure follow-up of individuals identified as having a higher risk of developing abnormal serum lipid profiles.
- Implement guidelines for primary and secondary prevention of cardiovascular diseases.
- Promote the safety profile of statins among health care professionals and the public.
- Promote access to medicines.
- Ensure that appropriate trained staff such as dieticians and nutritionists are available in the primary care setting.

3. NONCOMMUNICABLE DISEASES

3.1 Introduction

'A comprehensive and integrated approach to prevent and control Noncommunicable Diseases'

The Health Division will provide an integrated approach to activities to prevent and control the risk factors mentioned in the previous section and to address social and environmental determinants.

NCD have mutifactorial aetiology and result from complex interactions between persons and their environments. The genetic make-up, different ethnic groups and gene-environment interactions are important and are not to be forgotten in the probability of developing certain diseases.
Evidence shows that major chronic diseases are heavily influenced by lifestyle-related behaviours. These behaviours - unhealthy diet, physical inactivity, tobacco use and alcohol abuse lead to obesity and hypertension and to abnormalities in lipid and carbohydrate metabolism.

The diseases caused by these unhealthy behaviours may be listed as follows:

Noncommunicable Diseases

3.2 Cardiovascular Diseases
3.3 Respiratory Diseases
3.4 Musculoskeletal Diseases
3.5 Mental Diseases
3.6 Cancer

The structure of each section is subdivided into the following:

- Health Vision 2000 Targets and their evaluation.
- Presentation of statistical evidence.
- Strategies to achieve the new NCD targets up to 2020.

3.2 Cardiovascular Disease

Key Target in Health Vision 2000

By the year 2005, death rates for both coronary artery disease and stroke in people under 65 should be reduced by at least 10%.

Death rates for coronary artery disease have decreased by around 17% from 30.5 deaths per 100000 people in 1995 to 25.3 deaths per 100000 people in 2008.

Death rates for cerebrovascular disease have decreased by around 15% from 8.3 deaths per 100000 people in 1995 to 7.03 deaths per 100000 people in 2008.

Cardiovascular disease (CVD) is the top cause of mortality in Malta accounting for 40% of all deaths (Mortality Register 2008). The major types of CVD are coronary heart disease, cerebrovascular disease and heart failure.

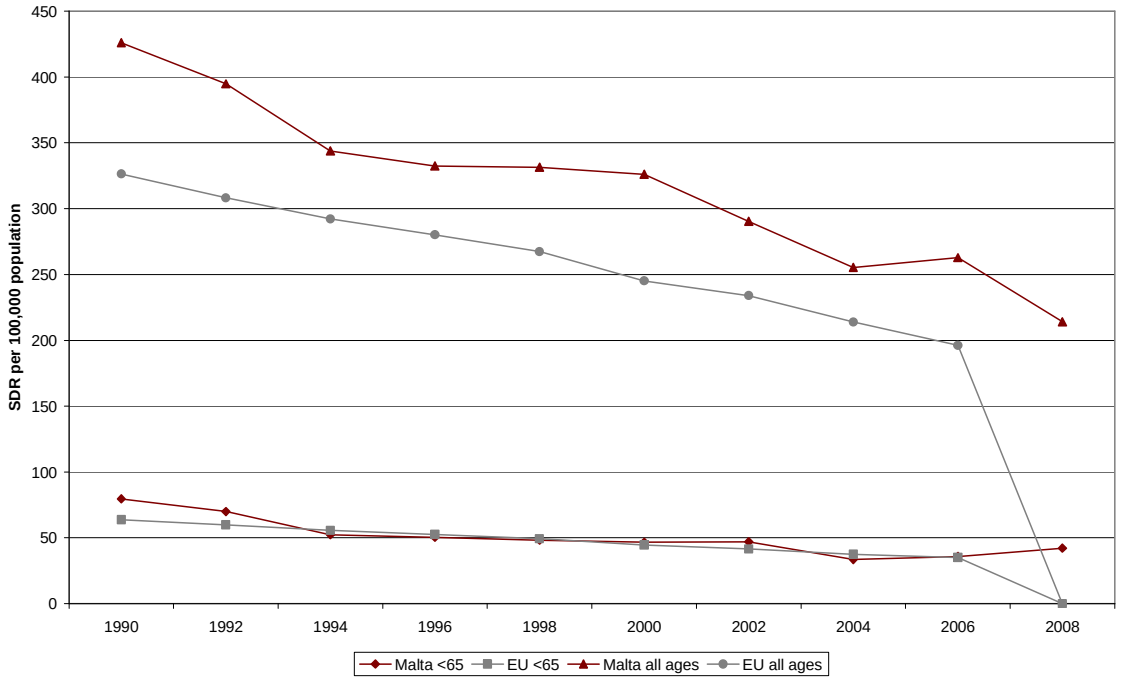


Figure 3.2.1: SDR/100 000 population for all cardiovascular diseases in Malta & EU-15
Source: WHO/Europe-Health for all Database (HFA-DB)

Coronary Heart Disease

This disease is the cause of a bigger proportion of deaths in Malta than it does in the EU -15. The discrepancy seen in the overall rate is not completely reflected in the rates for patients aged less than 65 years. This implies a much higher coronary heart disease mortality rate among Maltese elderly compared to their EU-15 counterparts

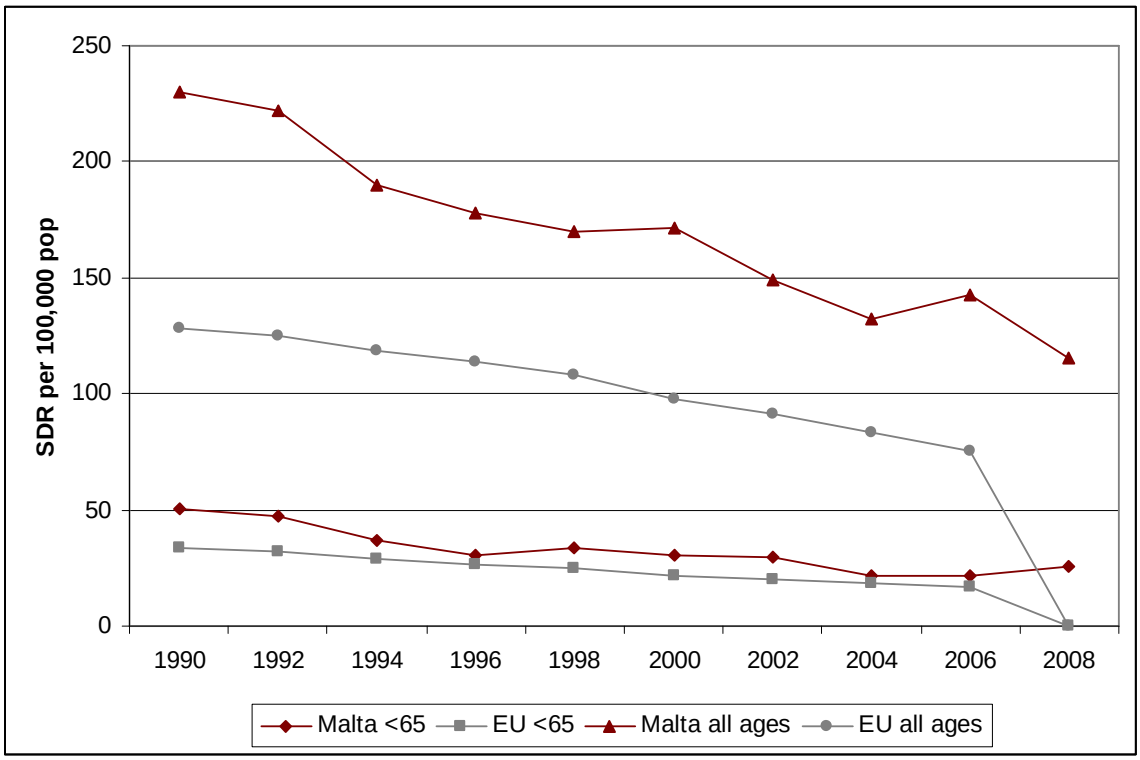


Figure 3.2.2: SDR/100 000 population for coronary heart disease in Malta & EU-15
Source: WHO/Europe-Health for all Database (HFA-DB)

Cerebrovascular Disease

Stroke is the second leading cause of death in the Western world, with an exponential increase in incidence with increasing age. Figure 3,2,3 also shows a higher overall mortality rate in Malta from stroke in those over 65 years as compared to the EU-15 population. Both overall rates show a marked decreasing trend. This trend is less evident in the younger patients (<65). When comparing cause of death statistics between different countries, one should keep in mind that there may be possible differences in certifying and coding practices between different countries.

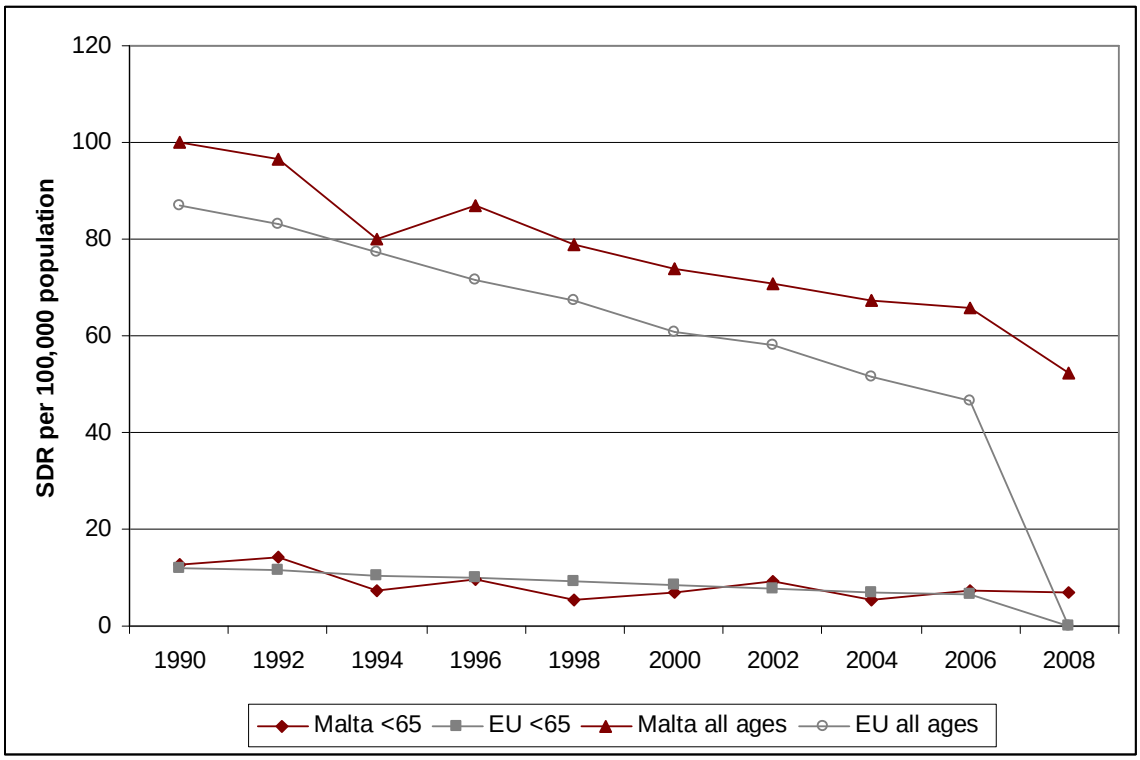


Figure 3.2.3: SDR/100000 population for cerebrovascular disease in Malta & EU-15
Source: WHO/Europe-Health for all Database (HFA-DB)

Risk Factors

The major risk factors associated with cerebrovascular disease are:

- Smoking
- Obesity
- Inadequate physical activity
- High salt intake
- Raised blood pressure
- Raised serum cholesterol
- Uncontrolled diabetes
- Strong family history

These risk factors were addressed in section 2.

Strategy Targets for 2020

Death rates for coronary artery disease in people under 65 should be reduced by a further 20%.

A 17% reduction in coronary artery disease mortality has been noted between 1995 and 2005. A linear projection of this change would result in a further 30% reduction in mortality. Allowing for the possibility of a deceleration of the decrease in the mortality rate due to physiological limitations, a target of 20% reduction has been set.

To reduce the proportion of survivors of cerebrovascular accidents reporting strong limitation in their daily activity from 31% to 25%.

The mortality rate of cardiovascular accidents is being addressed through the target on hypertension. However, the quality of life of surviving stroke patients needs to be improved through intensive rehabilitation programmes especially during the acute phase.

Strategies

The strategies formulated to reduce the level of morbidity and mortality caused by coronary artery disease and stroke are as follows:

- To increase public awareness of risk factors and what lifestyle changes are required (as detailed in Section 2)
- To reduce obesity aiming at a body mass index of less than 25 kg/m^2
- To improve nutrition and diet in the general population and high risk groups
- To increase physical exercise in all age groups
- To reduce the prevalence of smoking
- To reduce the average systolic and diastolic pressure - <140/90 mmHg in most, <130/80 mmHg in particular groups, such as patients with Type II diabetes
- To reduce the level of serum cholesterol - <5 mmol/l in most, <4.5 mmol/l in particular groups
- LDL-cholesterol <3 mmol/l in most, <2.5 mmol/l in particular groups

Values are taken from: de Backer G. et al. 2003.

- To ensure adequate glycaemia control in all persons with Type II diabetes.
- To strengthen the delivery of a comprehensive cardiac rehabilitation programme to patients following a cardiac event to enable them to return to a normal life and reduce the risk of further cardiac events.

To strengthen the delivery of an intensive stroke rehabilitation programme so that patients are helped to return to as normal a life as possible.

3.3 Respiratory Disease

Key Target – Health Vision 2000

None.

Respiratory diseases are a major source of morbidity and mortality in Malta. Chronic obstructive pulmonary disease (COPD), affecting both middle-aged and older individuals is the major cause of death.

Chronic Obstructive Pulmonary Disease

COPD is more prevalent in men, probably reflecting the higher overall prevalence of smoking in males. In fact, male deaths due to COPD have been consistently higher than the EU-15 average over the past ten years, while female deaths are consistently lower. While respiratory death rates in the older age group in Malta are higher than the EU-15 average in both genders, the disparity between the Maltese and European trends is larger in males. This is probably due to the contribution of COPD in elderly males. This pattern is expected to change to reflect the current trend in smoking among the two genders.

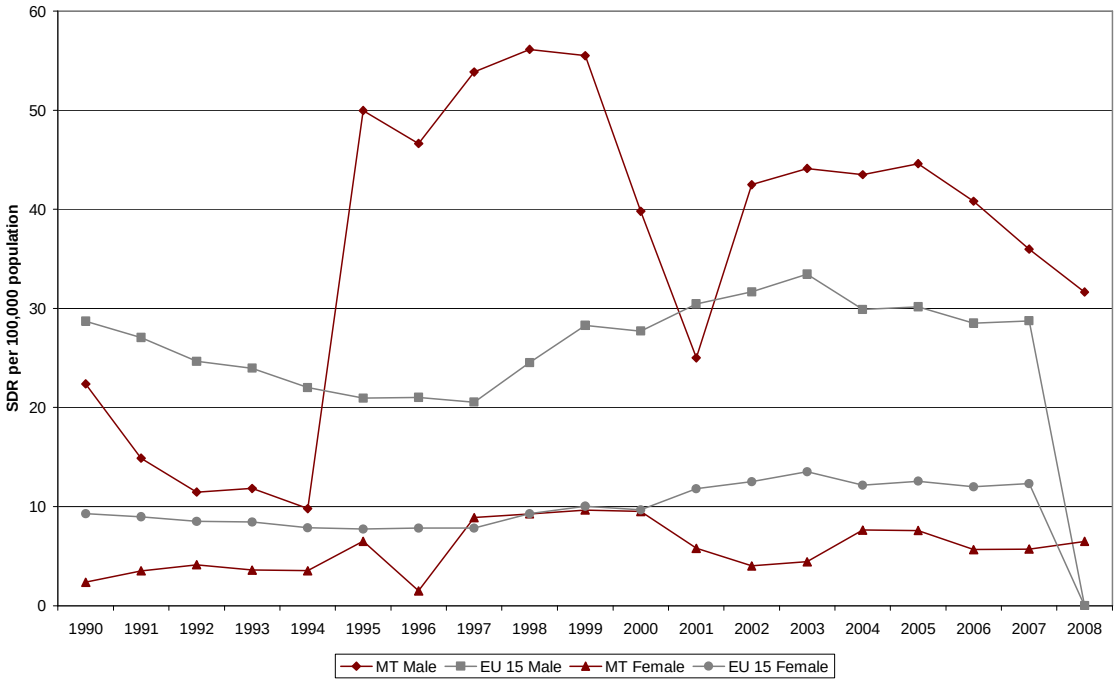


Figure 3.3.1: SDR/100 000 population for bronchitis/emphysema/asthma in Malta & EU-15
Source: WHO/Europe-Health for all Database (HFA-DB)

Asthma

Lifetime prevalence of asthma as reported by adults in the Health Interview Survey in 2008 is shown in Figure 3.3.2. Numbers for ages 6-7 years are from the Phase 3 International Study of Asthma & Allergies in Children study, in which Malta participated in 2003.

It appears that asthma is a major problem particularly in the younger age groups, exceeding 14% in both children and adolescents. This implies an increase in the prevalence of asthma in children from 1995 (8.8%) to 2003 (14.9%).

A gender difference in asthma prevalence in Malta has been reported by both HIS and ISAAC. Females are more affected than males in all age groups. The association of respiratory diseases with air-borne pollution and residing near or in busy roads has been confirmed by local research. Smoking is also known to make asthma worse.

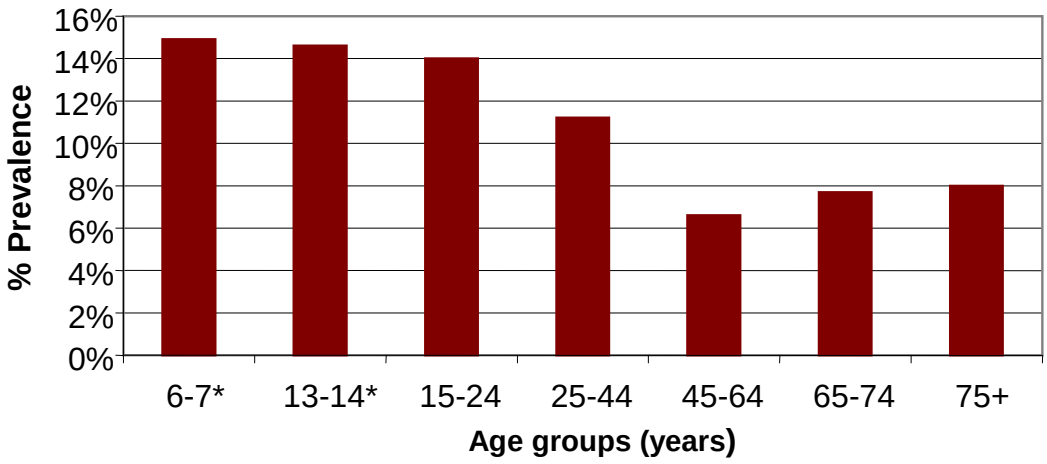


Figure 3.3.2: Lifetime prevalence of asthma as reported in HIS (*From ISAAC study, 2003)

Lung Cancer

Lung Cancer is another major respiratory condition with a relatively high mortality burden in Malta, being the number one cancer in males. Prevention strategies are discussed in "A National Cancer Plan" Strategy Document.

Risk Factors

The major risk factor associated with respiratory disease is:

- Smoking
- Pollution

Tobacco is addressed in Section 2.

Strategy Targets for 2020

To reduce the percentage of COPD patients with activity limitations during the previous 6 months from 33.6% in 2002 to 25%.

In 2002, Health Interview Survey data showed that 33.6% of respondents suffering from COPD experienced some activity limitation because of their health problem during the previous 6 months. Only 18% of the overall population reported such limitations. In 2008, 31% of those reporting suffering from COPD said they experienced limitation due to a health problem. (No specific question on activity limitation due to COPD was set).

Strategies

The Strategies formulated to reduce the level of mortality and morbidity caused by respiratory illness in the general population are as follows:

- To reduce the prevalence of smoking, with a special focus on young people
- To improve the management of asthma by improving education on self-care by asthmatics and their carers and all those involved in the care of children.
- To ensure that all environmental policies are underpinned by health impact assessments.
- To improve quality of life of COPD patients by reducing functional limitations and activity restrictions by ensuring that effective and accessible rehabilitation programmes are being delivered.

3.4 Musculoskeletal Disorders

Key Target – Health Vision 2000

None.

The Primary Care Survey (1992) reports that 11% of male respondents and 22% of female respondents suffered from arthritis. Similarly, the Health Interview Survey (2008) reported 12.3% of male respondents and 20.6% of female respondents suffering from arthritis.

Osteoarthritis

Figure 3.4.1 shows the distribution of self-reported cases in the community according to the Health Interview Survey. As expected, arthritis is an ailment that involves mainly persons aged over 60. In view of Malta's ageing population, this burden is likely to increase with time.

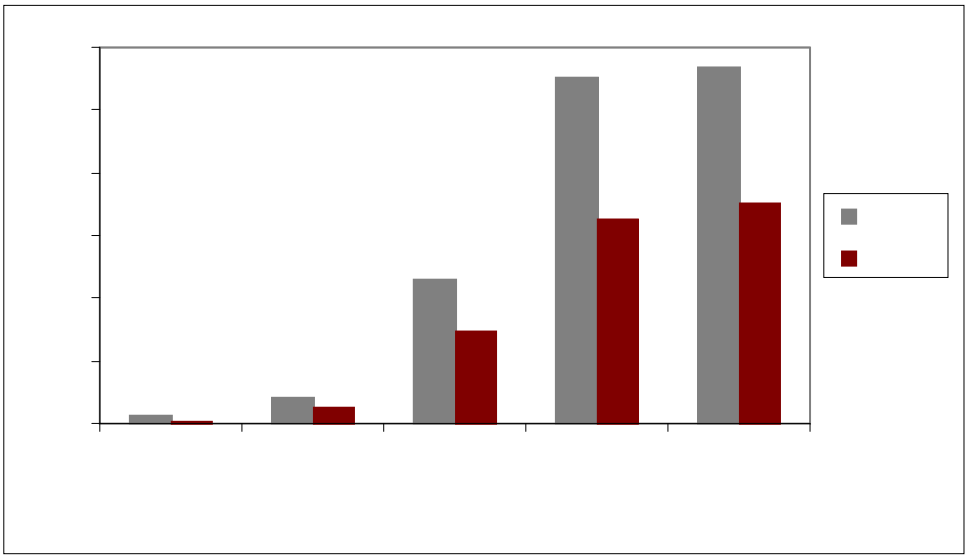


Figure 3.4.1: Prevalence of arthritis in the Maltese population (HIS 2008)

Osteoporosis/Hip Fractures

Osteoporosis is a progressive disease characterised by low bone mass and susceptibility to fractures. This common condition can lead to painful fractures and disbility, with the majority of patients being elderly women. Osteoporosis is silent until the first fracture occurs. Hip fractures result in pain, disbility, loss of independence, frequent admission to long-term care and a 15-20% increase in mortality in the twelve months following the fracture. Figure 3.4.2 shows the number of admissions to hospital with hip fractures, with twice as many in women. The great majority of these would arise following falls in the elderly. In fact, falls accounted for 43 (M: 14, F: 29) deaths in 2005.

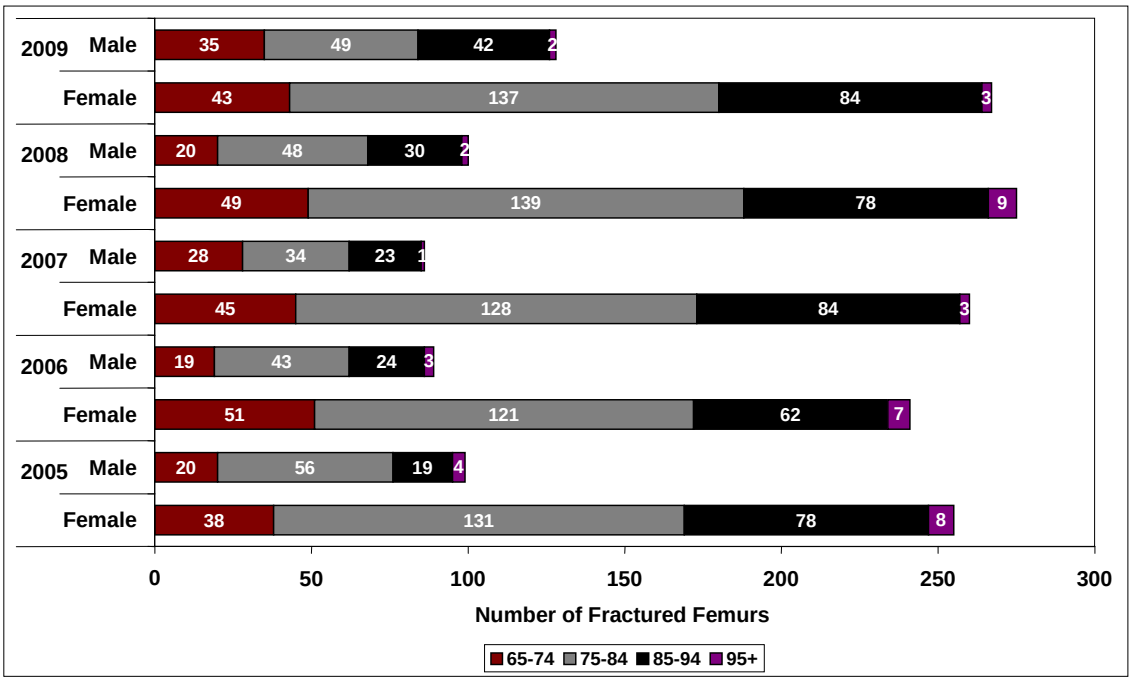


Figure 3.4.2: Number of admissions to St Luke's / Mater Dei Hospitals by gender between 2005 and 2009 (Hospital Activity Analysis, DHIR)

Risk Factors

The major risk factors associated with osteoarthritis and osteoporosis:

- Low calcium intake
- Obesity
- Occupation
- Sedentary lifestyle
- Smoking
- Alcohol

Most of these risk factors are addressed in section 2 of this document.

Bone mass increases throughout childhood and adolescence until peak bone mass is achieved in the third decade. Bone mass usually remains constant till age 40, and then declines in both sexes. Bone loss is more rapid in women, and accelerates in the years after the menopause.

Strategy Targets for 2020

To reduce the percentage of arthritic patients with self-reported activity limitations during the previous 6 months from 40.2% in 2002 to 30%.

The 2002 Health Interview Survey, which is the latest source of data available on arthritis-related activity limitation, showed that 40.2% of respondents suffering from arthritis experienced some activity limitation because of their health problem during the previous 6 months. Only 18% of the overall population reported such limitations.

To reduce the admission rate for femoral fractures in the 60+ age group by 10%.

Femoral neck fractures and vertebral fractures in the aged are considered to be the direct consequence of osteoporosis. However, a number of vertebral fractures tend to be silent, i.e. not presenting to secondary care. Therefore femoral fractures are a better proxy indicator for osteoporosis.

Strategies

In order to promote bone health, a preventive strategy targeted at the younger population is as follows:

- To promote education in schools (children, teachers and families) regarding healthy lifestyle especially weight-bearing exercise and cessation of smoking.
- To promote the consumption of milk in school aged children and adolescents to increase calcium in the diet and bone mass.
- To include the bone health message within general health promotion and healthy lifestyle programmes.
- To promote weight bearing exercise in children and adolescents so as to increase bone mass.

The main strategy to assist the ageing population involves re-orienting the Day Care Centres in Malta to become Healthy Living centres offering:

- Training and support for Healthy Living
- Weight management and healthy eating classes
- Physical activity sessions to increase weight-bearing exercise such as walking or strength training which also improves muscle tone and balance and reduces both osteoporosis and falls.
- Medical check-ups and tests
- A social environment where users may meet peers and enjoy a number of activities.
- To ensure that persons who have suffered a fragility fracture are assessed and managed appropriately regarding osteoporosis and increased risk of further fractures.
- To ensure the availability of medicines

3.5 Mental Health

Key Target – Health Vision 2000 (partly attained)

By mid 1996, the strategic plan for the implementation of the 'National Policy on Mental Health Service' should be finalised.

Attained.

By 1995, autonomous management within the mental health care sector should be introduced.

Attained in 2003.

By 1995, a pilot primary care multidisciplinary team should be set up and introduce such teams in all localities by 1998.

Multidisciplinary teams (including psychiatrists, GPs, nurses, social workers and psychologists have been set up in three health centres.

By 1995, a Mental Health Federation to include all the NGOs active in the field of mental health should be set up.

Attained.

By 1996, regular in service training programmes for medical and paramedical staff working in the mental health sector should be established.

These programmes have been developed over the years to include all levels of medical and paramedical staff.

By 2000, the inpatient population within Mount Carmel Hospital [MCH] should be reduced by 20% of the population surveyed in the 1994 MCH census.

The World Health Organization describes mental health as: “a state of well-being in which the individual realises his or her abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community.” Mental ill health includes mental health problems and strain, impaired functioning associated with distress, symptoms and diagnosable mental disorders such as schizophrenia and depression. The mental condition of people is determined by a multiplicity of factors including biological (e.g. genetics, gender), individual (e.g. personal experiences), family and social (e.g. social support) and

economic and environmental (e.g. social status and living conditions) (Green Paper Improving the Mental Health of the Population, 2005).

More than 27% of adult Europeans are estimated to experience at least one form of mental ill health during any one year. The most common forms of mental ill health in the EU are anxiety disorders and depression. By the year 2020, depression is expected to be the highest ranking cause of disease in the developed world. Females tend to be more affected than males and there is a considerable amount of comorbidity. It is estimated that 3%-4% of Gross Domestic Product of E.U. countries are spent on mental ill health. This is mainly due to lost productivity, early retirement and disability pensions (Green Paper, Improving the Mental Health of the Population, 2005).

Shift from Institutional Care to Community Care

In line with common trends in Mental Health Care, the Mount Carmel 5-year strategic plan (2008-2013) includes the development of community care services so as to promote as independent a life as possible in the community. To this end, Malta is divided into 9 sectors and each sector will enjoy its own set up of community services. To date, there is a Primary Multidisciplinary team which provides a service in the Qormi, Mtarfa and Cospicua areas. This multidisciplinary team is made up of a psychiatrist, GP, nurse, psychologist, social worker and occupational therapist and delivers its services at the health centre and also visits the patient's homes. The primary health team acts a gatekeeper to secondary services. Community services also include two Outreach Teams that take care of patients who although have been discharged to the community are still semi independent. There are two hostels in the community catering for individuals suffering from mental health problems. A primary prevention service is also available which has as its main aim the education of different sections of the public such as school children, old people and others. These community services have contributed to the reduction in occupied beds at Mount Carmel Hospital. In fact, from 2004 till 2009 there was a total reduction of 20% (112) of occupied beds.

Local Statistics

The main statistics about mental health of the Maltese population are obtained from the Health Interview Survey (HIS) carried out in 2008. Of the survey population, 15% reported having had a mental disorder at some point in their life.

Chronic Depression and Chronic Anxiety

Literature shows that anxiety and depression tend to occur together and that the risk factors for both conditions are similar. Participants in the HIS 2008 survey were asked about their lifetime experiences of chronic disorders; including chronic depression and chronic anxiety and whether they experienced this disease/condition in the past 12 months.

Of the surveyed population 6.6% reported a lifetime experience of chronic depression. Females reported a higher rate of chronic depression to males (7.7% and 5.4% respectively HIS 2008). Reported lifetime depression is low in the younger age groups and reaches a peak level of 13% in the 65-74 age group in females while males in the 55-64 year age group seem to be most vulnerable to chronic depression.

7.8% of the respondents reported suffering from chronic anxiety at some point in their lifetime. Nearly 80% of these reported having symptoms in the previous 12 months. Women are significantly more likely than men to report chronic anxiety (12.2% compared with 9.7%). In females, chronic anxiety increases with age reaching a peak of 16.9% in females over 75 years of age. In males, chronic anxiety reaches a peak of 10% in the 55 to 64 year age group.

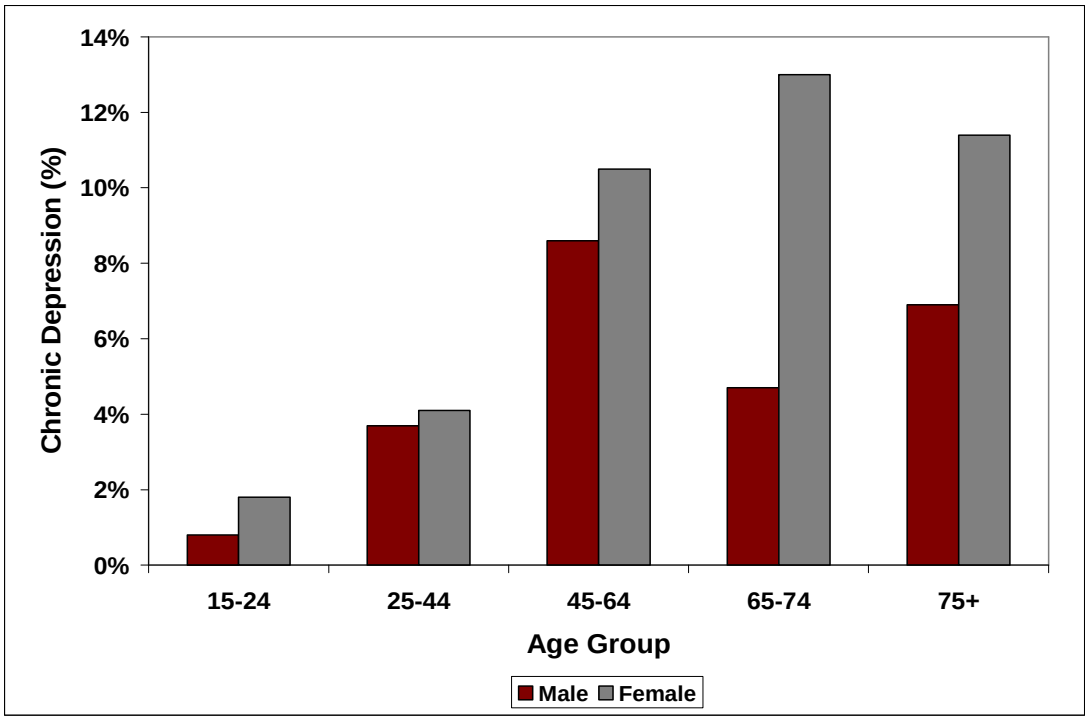


Figure 3.5.1 Prevalence of self-reported chronic depression by gender and age group
Source: HIS 2008

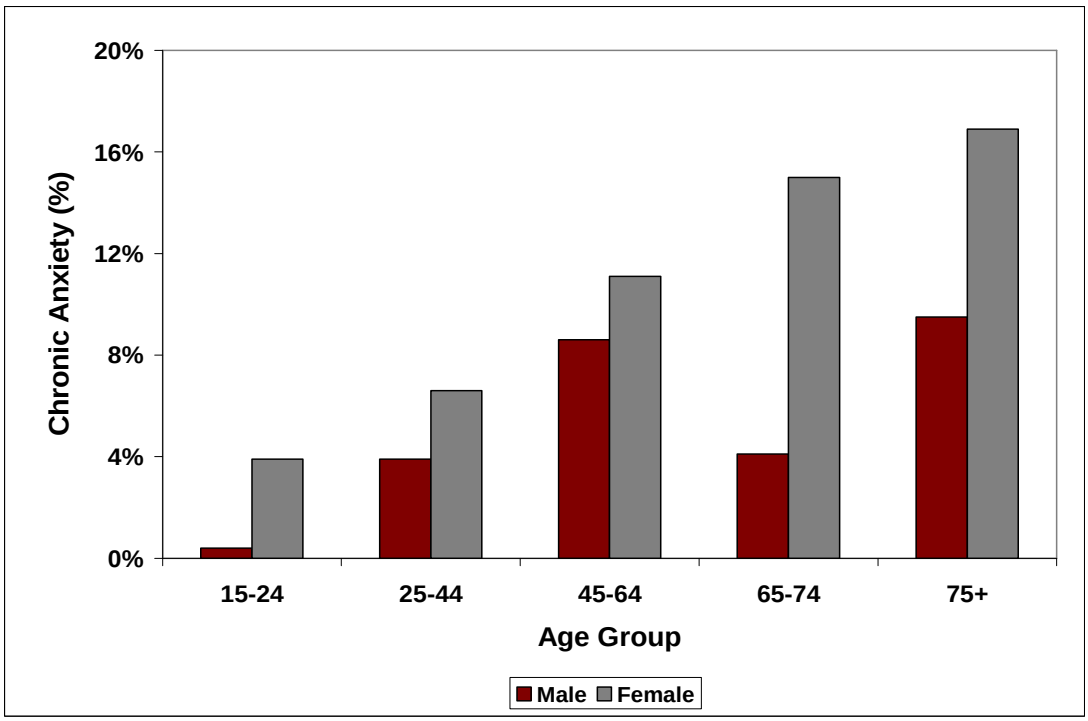


Figure 3.5.2: Prevalence of self-reported chronic anxiety by gender and age group
Source: HIS 2008

Detailed analysis of the Health Interview Survey dataset support the recognised association and coexistence of anxiety and depression and their very similar risk factor profile. Results also support the correlation between a number of socio-demographic characteristics and depression and anxiety. For instance chronic depression and anxiety are associated with lack of gainful employment. This correlation reaches significance for both males and females for chronic anxiety and for females for chronic depression. Lower levels of education are significantly associated with a higher prevalence of both conditions. Social relationships and networks can act as protective factors against the onset or recurrence of mental illness (WHO, 2005). Respondents who had such social networks were less likely to have a lifetime experience of mental disorder. This relationship was only statistically significant for chronic depression.

Dementia

Another major cause of morbidity affecting the cognitive areas in the Maltese elderly is dementia. No reliable prevalence or incidence data exists for Malta. However, the prevalence rate of dementia in Europe is estimated to be around 5% for those aged between 60 and 79, increasing to 20% for those aged 80 years and over. Due to perceived increasing prevalence, a strategy on dementia is being drafted.

Suicide

Mental ill health may lead to suicide. Some 58,000 citizens in the EU die from suicide every year and suicide levels among males are three to four times those for females (WHO, 2005). When analysing suicides, one confirms a consistently reported observation that the overall suicide rate in Malta is much lower than the average in the EU-15. Unfortunately it tends to affect the younger individuals more commonly, therefore resulting in a large number of potential years of life lost. There has been a trend in other countries towards younger suicide although older suicide still remains commoner. More males, especially young adults, die of intentional self-harm. However, this does not reflect the whole picture because, as documented by the international literature, women are more likely to commit acts of deliberate self-harm.

Interpretations and conclusions drawn from statistical information with regards to suicides must be made with caution and the following points must be kept in mind:

- Suicide poses a problem for its identification and at times may be extremely difficult to decide whether a death was a suicide or an accident or a homicide.
- Suicide carries a stigma and death due to suicide is rarely written on the death certificate.
- The National Mortality Registry is in close collaboration with the police and pathologists in order to produce statistics as accurate as possible regarding suicides.

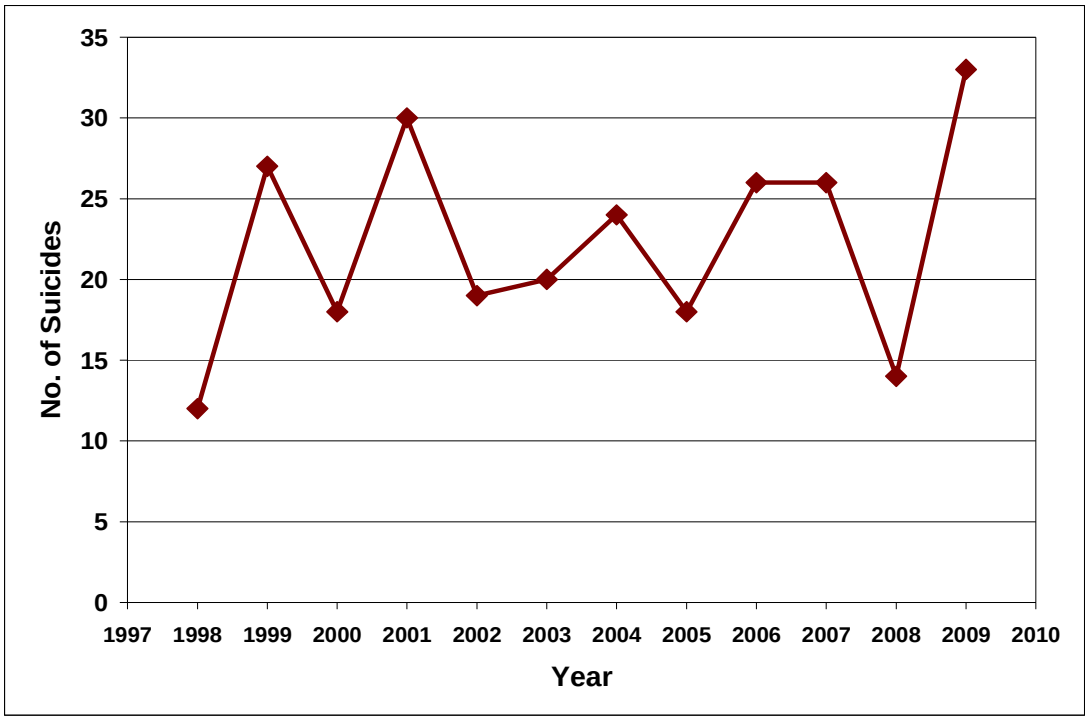


Figure 3.5.3: Number of deaths from Suicide 1998 -2009
Source: National Mortality Registry

No significant trends (p= 0.578) in mortality from suicide can be observed over the past years (1998-2009). During 2009, 33 deaths due to suicide in residents were reported to the National Mortality Registry.

Age group	males	females	total
0-44	18	3	21
45-64	8	0	8
65-84	4	0	4
85 & over	0	0	0
Total	**30**	**3**	**33**

Table 3.5.1: Number of deaths due to suicide in 2009 by age group and gender
Source: National Mortality Registry

Illicit drug use

Since drug use is an illicit and often stigmatized activity and not all problem drug users will be in treatment, indirect methods of estimation had to be resorted to as direct methods such as population and household surveys will underestimate the prevalence of problem drug use. In Malta, a five-source capture-recapture method was adopted using data from Maltese daily heroin users attending the five treatment providers in 2006. Heroin users were included because treatment is predominantly provided to such users (heroin is the primary drug of 85% of all clients). The estimated number of daily heroin users stood at 1606 (95% confidence interval 1541 to 1685). This estimate suggests that approximately 78%, of daily heroin users attended treatment services in 2006. The rate per 1000 population aged 15-64 was 5.4% (95% confidence interval 5.1 to 5.6). (National Report on the Drug Situation in Malta, 2007).

The 2008 Health Interview Survey reported a rate of 8.1% of Maltese adults above the age of 15 admitting to ever having used illicit drugs, including cannabis.

The ESPAD study was carried out in 2007 on form 5 students attending all school types in Malta and who would be 16 years of age by the end of 2007 during which the survey had been performed. The study showed that although cannabis use in Malta is below the ESPAD average, the use of inhalants and the combined use of alcohol and pills are more frequent than in many other ESPAD countries.

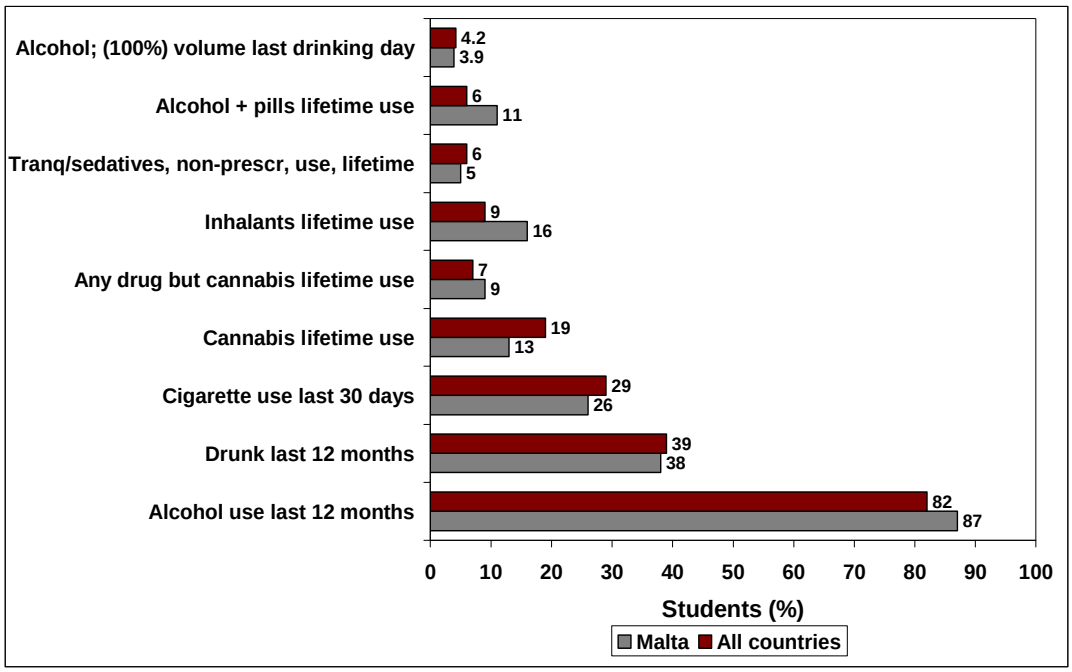


Figure 3.5.4 Percentage of Maltese 16 year olds abusing the above drugs
Source: ESPAD 2007

Strategy Targets for 2015*

The strategic plan for the implementation of the 'National Policy on Mental Health Service*' should be finalised.

This Health Vision 2000 target is still unattained.

An efficient and effective community services network should be established.

The Health Vision 2000 target to have primary multidisciplinary teams in all localities is still unattained. Only 3 pilot sites have been instituted. However, this target, as well as a target to establish secondary care team backup, forms part of the Mount Carmel Strategy 2006.

To decrease the number of psychiatric beds at MCH from 500 beds presently to less than 420 and to decrease bed occupancy from 445 currently to less than 400.

This target is based on the mental health vision to move patients increasingly towards the community with supporting community teams and a smaller more efficient in-patient hospital.

To increase the population of psychiatric patients living under supervision in the community.

Currently, around 50 patients are being housed in community-based hostels around the country. The Strategy for Community Mental Health Services published by the National Commission for Mental Health in October 2000 estimates the needs in terms of facilities to include

- Community Services Network covering all regions in Malta and Gozo
- at least one day centre and one hostel in each community sector in Malta and Gozo
- at least one crisis intervention team
- the establishing of sufficient community hostel beds for the learning disabled such that at least 95% are located in the community

To foster better collaboration between the different NGOs with the aim of increasing the delivery, synergy and sharing of resources to offer a more comprehensive Mental Health Care Service.

Mental health promotion aims to protect, support and sustain emotional and social well-being and create individual, social and environmental conditions that enable optimal psychological and psycho-physiological development, enhance mental health, while showing respect for culture, equity, social justice and personal dignity.

Mental disorder prevention focuses on reducing risk factors and enhancing protective factors associated with mental ill-health, with the aim of reducing risk, incidence, prevalence and recurrence of mental disorders. Prevention aims to decrease the time spent with symptoms and conditions predisposing to mental illness. It also endeavours to delay recurrences and to decrease the impact of illness in the affected person, their families and society.

* For Mental Health, the strategies are set for 2015 as most are Service Orientated and are thought to be achieved by then.

Prevention and promotion in mental health are at the core of the mental health policy being proposed:

Strategies

- To reduce psychosocial stress especially in the workplace and in schools
- To support a multi disciplinary approach to patient care and enhance the role of the family doctor in community psychiatric care
- To continue to provide complementary and diversified multisectoral specialised psychiatric services, both inpatient and outpatient, to cater for all psychosocial needs of the community, with an emphasis on promotion, prevention, early intervention and community support
- To provide sustainable, rehabilitative community services for suitable patients currently living in mental hospitals so as to reintegrate them into society and prevent admission to hospital
- To minimise stigma and discrimination and enhance inclusion by increasing public awareness and empowering people at risk
- Enhanced Prevention Programmes and anti-drug strategies provided by the Commission against drug and alcohol abuse (KADA).
- Formulating proposals for amendments to existing legislation and policies in relation to alcohol and drug abuse
- Training of teachers and health professionals in skills which protect the individual against mental ill health including self assertion, coping, communication, self management and communication

3.6 Cancer

Cancer targets and strategies are set down in a separate document entitled 'A National Cancer Plan '.

3.7 Oral Diseases

Key Target - Health Vision 2000

In respect of Dental Caries:

60% of 5-6 year olds caries free
2.0 DMFT* at 12 years of age
1.6FT per person at 12 years of age**

In respect of periodontal Disease:

All 12 year olds with at least 4 healthy sextants***
90% of 18 year olds with at least 3 healthy sextants

In respect of Tooth Loss:
60% of 18year olds with no missing teeth

*DMFT is an index used to measure dental caries and represents the decayed, missing and filled teeth
**FT represents the proportion of Filled teeth
***For purposes of screening the mouth is divided into six sextants (areas)

Globally predominant among oral diseases are dental caries and periodontal disease (gum disease). They are together responsible for an enormous amount of pain and suffering which leads to loss of millions of teeth annually. The social and psychological toll also includes discomfort, anxiety, embarrassment and dietary restriction thus leading to poor general health. Other diseases are dental erosion, dental trauma, malocclusions and oral cancer.

Dental Caries

The major cause of dental caries (decay) is the frequency of consumption of sugars in the presence of certain bacteria and over time. Reduced consumption of sugars in food and drink, and resistance induced by fluoride are factors, which counter the development of decay, especially in its early stages when the process is reversible. The amount of tooth decay is measured by the average count of decayed (D), missing (M) and filled (F) teeth in the deciduous dentition (dmft) and in the permanent dentition (DMFT).

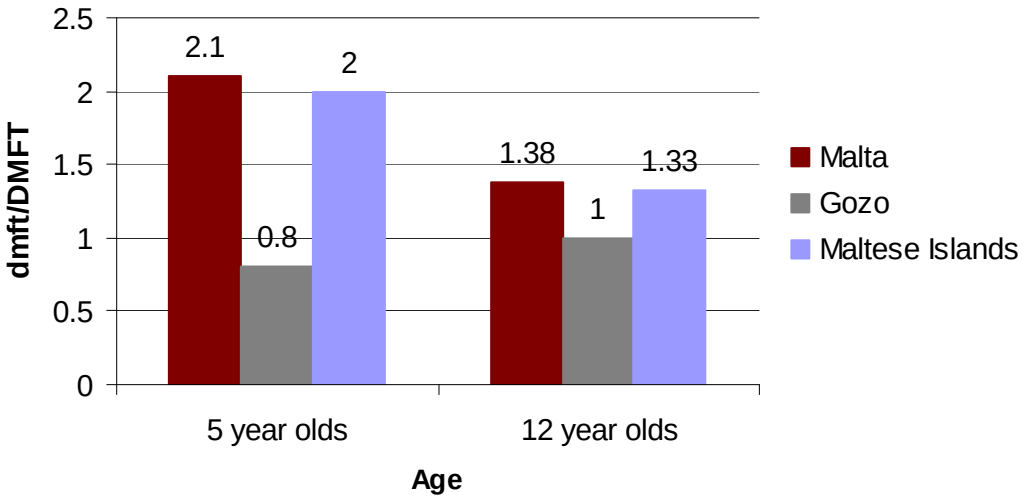


Figure 3.7.1: Mean dmft and DMFT in the Maltese Islands

The mean dmft in 5 year olds is 2; with Malta having a dmft of 2.1 and Gozo of 0.8. 53% of 5 year olds are caries free; 51% in Malta and 61% in Gozo (national goal of 60% caries free not achieved in Malta).

The mean DMFT in 12 year olds is 1.3, achieving the national goal of 2 by the year 2000. 49% of 12 year old children are caries free, 63% in Gozo as opposed to 47% in Malta. Only 22% have a DMFT greater than 2. Thus caries levels in Gozo are much lower than in Malta.

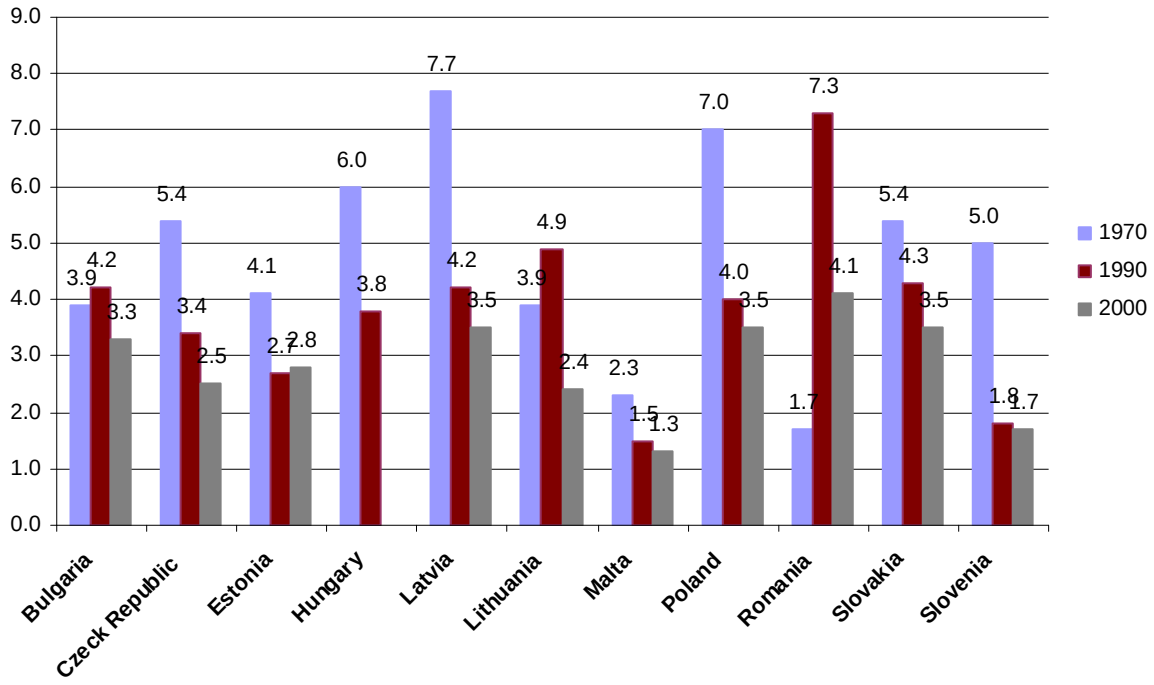


Figure 3.7.2: DMFT-index in 12-year-olds in some newer EU Member States in 1970s, late 1990s and early 2000.

The Care Index (FT/DMFT))(amount of filled teeth as a proportion of Decayed, Missing and Filled teeth) in 12 year olds has increased from 12.5% in 1987 to 42% in 2003 but is still low compared to other European countries. The FT per person is 0.4; thus the national goal has not been achieved.

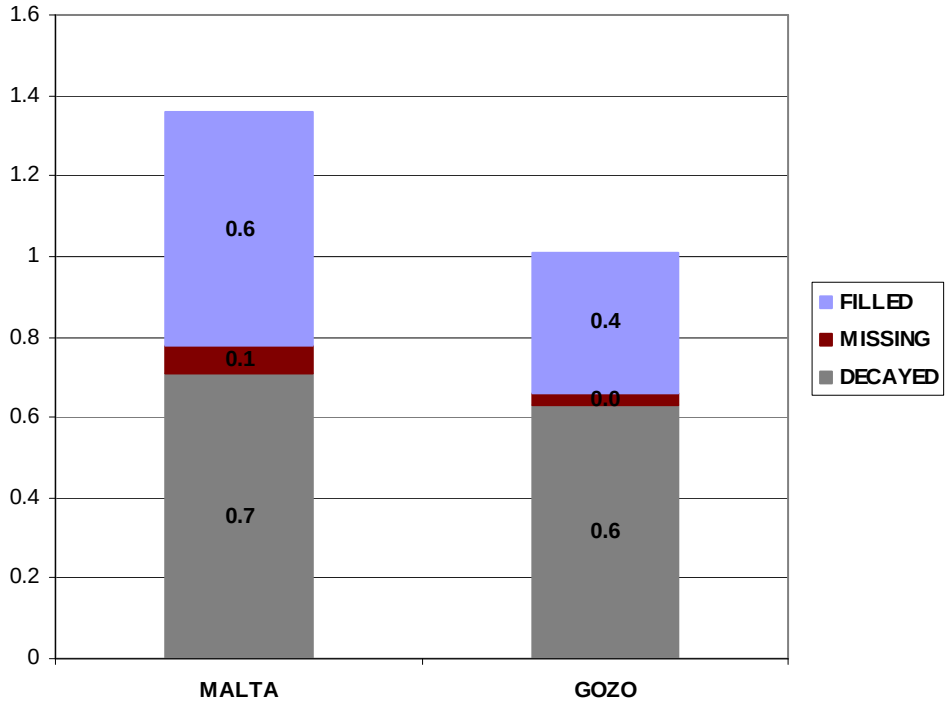


Figure 3.7.3: Care Index in Malta and Gozo in 12 year olds (Moller 1987, Vassallo and Portelli 2004)

Periodontal Disease

Periodontal disease is the disease of tissues supporting the teeth. The early stages of inflammation and bleeding of the gums may eventually lead, to loosening of teeth. Being a cumulative condition, gum disease tends to become more severe and more prevalent with increasing age. Its prime cause is bacterial dental plaque related to poor oral hygiene. Tobacco smoking is associated with rapid progression and increased severity of gum disease.

30% of 12 year olds have very poor oral hygiene – plaque present on all six index teeth; 66% have plaque on 4 or more index teeth and only 5% have no plaque

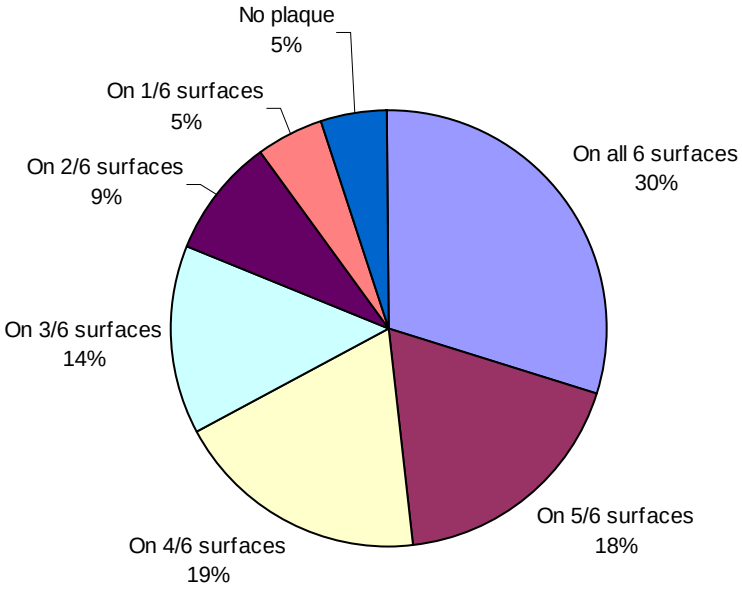


Figure 3.7.4: Oral Hygiene in 12 year olds using Plaque Index

Oral/facial trauma

6.6 % of 12 year olds had clinical signs of trauma to their anterior teeth; with a male female ratio of 21 to 15 (58% male to 42% female). This figure is less than the 11% reported for the same age group in the United Kingdom where males also outnumber females.

Oral Cancer

The prevalence of oral mucosal lesions is low and the presence of tumours appears to be low (Malta Cancer Registry).

Dental Erosion

Dental erosion is becoming more prevalent and may be related to a high intake of acidic food drinks. Local data is not available. This will be included in the next national Dental Survey in 2010/11.

Exposure to Fluoride

It has been widely recognised that fluoride has played an important role in the prevention of dental caries. Over the past decades, Malta has seen changes in the water supply system from one purely dependant on underground water which was naturally fluoridated, to one which is heavily dependant (over 60%) on desalinated sea water from reverse osmosis plants. This has led to a decline in the levels of fluoride naturally present in our drinking water and this may have an impact on oral health (Water Services Corporation-WSC; Department of Environmental Health-DEH).

In the past Gozo was totally dependant on ground water. A new Reverse Osmosis Plant was introduced in 2004 with some of the ground water being polished and blended to meet EU drinking water regulations parameters. This has resulted in a dramatic decline in the fluoride levels in Gozo.

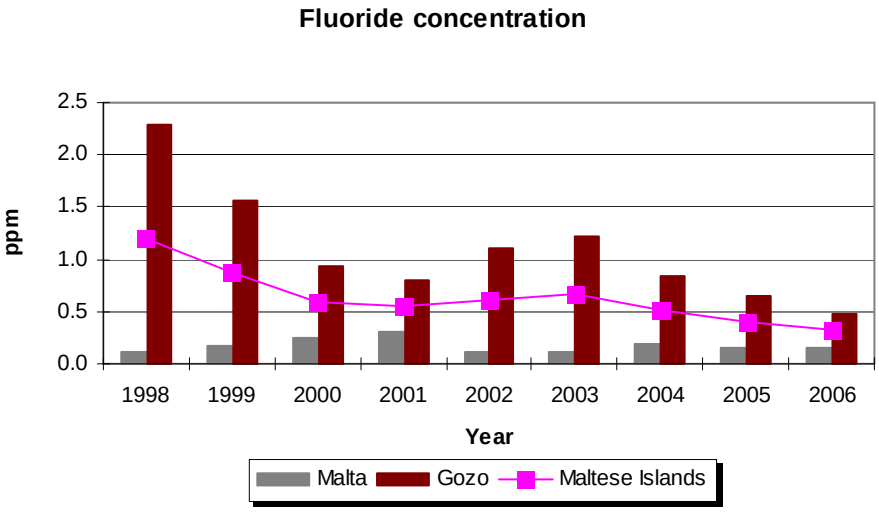


Figure 3.7.5: Fluoride concentration in the water supply

The risk factors associated with oral diseases are:

- Diet (consumption of Sugars and acidic foods/drinks)
- Poor Oral Hygiene
- Fluoride availability (low)
- Smoking
- Alcohol

Strategy Targets for 2020

- **The proportion of caries free teeth in 5 year olds should be 65% (currently 53%)Reduce the mean DMFT in 12 year olds to 1.1 (currently 1.3)**
- **Increase the care index (FT/DMFT) to 70% in 12 year olds (currently 46%)**
- **All 12 year olds should have at least 5 healthy sextants**

Strategies

The emphasis for the future should be on the early detection and prevention of oral diseases. Oral health should be viewed in the context of the health of the individual as a whole.

Effective oral hygiene, a reduction of the consumption of sugary foods and drinks, sufficient fluoride exposure and appropriate use of the dental services greatly influence oral health and these are to a large extent determined by individual behaviour.

The aim is to promote oral health and to enable all individuals to retain a functioning dentition in a healthy mouth for life, by preventing what is preventable, by containing the remaining disease or deformity, restoring lost function and appearance through the efficient use and distribution of cost- effective and evidence-based treatments.

Although there have been significant improvements in oral health over the last three decades, there is a continuing need for effective oral health promotion programmes which address the

major influencing factors for oral health and disease. These are oral hygiene, sugar consumption, fluoride intake and use of preventive dental services. In addition, smoking has been linked to conditions such as oral cancer and gum disease. Dentists have been shown to be effective in raising awareness and helping their patients with smoking cessation.

Interventions to promote healthy lifestyles, reduce health damaging behaviours, improve access to appropriate preventive oral health care and ensure healthy environments would reduce the burden of these diseases both for the individual and the community.

- Access, availability and affordability of a healthy diet to include fresh fruit and vegetables;
- Exposure to fluoride, whether by means of dietary supplements, tooth brushing, water fluoridation (including bottled water) or salt or milk fluoridation as a public health measure;
- The knowledge and understanding of self-care, i.e., maintaining good oral hygiene by tooth brushing and regular dental attendance;
- Providing dental services which focus on the needs of the patients particularly in relation to clinical prevention of dental disease e.g., fissure sealants and topical fluoride for children and long-term treatment planning for the older population.
- to improve the primary dental care services available
- More partnerships across sectors and disciplines
- All dental practices should have a health promotion policy that identifies the role of the dental team in smoking prevention and cessation

4. CONCLUSIONS AND RECOMMENDATIONS

Evidence shows that noncommunicable diseases and their risk factors currently constitute major health problems in Malta and these are anticipated to deteriorate further in the years to come. The successful implementation of strategies and achievement of targets proposed in this document depends on underlying guiding principles. In line with the Health for All approach, the strategy addresses all four types of programme efforts needed for health improvement:

1. Address underlying health determinants
2. Promote a healthy lifestyle
3. Prevention and early detection programmes
4. Holistic patient care

To achieve the above, an integrated multisectoral approach and the application of multidisciplinary care is required through the unified actions of:

- The Ministry of Health, Elderly and Community Care through its Public Health Regulation, Health Care Services and Strategy and Sustainability divisions especially:
  - Department for Health Promotion and Disease Prevention
  - National Programmes Unit
  - Directorate for Health Information and Research
  - Department for Primary Care

How can all these multisectoral units work together?

To ensure successful collaboration, a dedicated committee must be set up and will include members from government departments (including those described below) and with other non-governmental sectors such as the private sector, Non Governmental Oganisations, unions, voluntary organisations, professional groups and patient representation. It is this integrated and comprehensive approach that holds the greater potential for health gains.

The committee will be responsible for drafting of an action plan, implementation, monitoring of progress and evaluation of the results.

Each Department will be responsible for specific actions in order to ensure implementation of the NCD Strategy. Some of the actions needed are described below.

4.1 Noncommunicable Disease Strategy Action Plan

Health Division

- Political lobbying – Investment in the prevention of Noncommunicable diseases must be shown as an investment with expected gains in productivity, employment, social cohesion and economic development
- Regulation and compliance
- Advocacy in order to create living conditions conducive to health and the achievement of healthy lifestyles
- Build capacity – human and financial resources, infrastructure and consumables (drugs, technologies etc)
- Form partnerships with international and national relevant stakeholders
- Consensus by consultation with all relevant stakeholders, government, non-government and private sector
- Set up an executive national programme team responsible for participation in international meetings, preparing detailed action plans, realising policies and targets and for setting national guidelines
- Set up an interministerial (intersectoral) committee for collaboration between health sector, education, finance, environment, transport, labour, agriculture, trade unions, NGO's etc.
- Management systems
- Monitoring and Evaluation of Programmes
- Coordinate all committees and programme teams
- Preventive programmes as required
- Pilot programmes expanded gradually
- Design of cost-effective health-care packages
- Health Impact Assessment as a tool
- Training workshops – training manuals, doctors, nurses, paramedics,
- Skill building programmes - parenting skills
- Social networks, support groups
- School Health Service

Directorate for Health Information and Research

- Epidemiological information, surveys, trends.
- Surveillance Information System to assess and monitor risk factors and NCD – process and outcome indicators
- Information base on risk factors and NCD
- Management Information System – dissemination of relevant and timely information to policy makers and evaluators
- Evaluation system , measurement, follow-up and feedback.
- Research and genetic studies

Department for Health Promotion and Disease Prevention

- Advocacy – use of mass media etc.
- Health literacy – general public, teachers, police, social workers, journalists and local councils
- Management Information System - dissemination of relevant and timely information to policy makers and evaluators
- Capacity Building

The Department of Health Promotion and Disease Prevention will provide leadership in creating partnerships to build resources and commitment to improve health, thus prolonging and promoting healthy life.

- Community Development
  The Department of Health Promotion and Disease Prevention will continue to develop its initiatives within the Community to help people increase control over their health. The Department plans to achieve this aim by:

  - Lobbying for the inclusion of Health in the National Action Plan on Poverty and Social Exclusion
  - Involving communities in decision-making and problem solving processes in order to influence their health
  - Targeting structural change of the environment

- Health Promotion, Counselling and Skills Development
  Health Promotion includes underlying social, economic and environmental conditions impacting on health, as well as individual risk factors and risk behaviours and use of the health system.

The Department for Health Promotion and Disease Prevention will enhance its training, counselling and skills development to individuals and groups. These services may be offered pro-actively as part of a planned program, opportunistically, or reactively in response to client requests. This action can also include training in prevention and health promotion for professional groups and educators.

- Social Marketing

The Department of Health Promotion and Disease Prevention will enhance its Social Marketing strategy. This strategy aims to:

- Provide correct information to the general public
- Influence how people think and behave
- Utilise the media to the best possible effect

Department for Environmental Health

Economic, Regulatory and Policy Initiatives
Malta was in the forefront in putting legislation in place in the area of Tobacco. Such regulatory and policy initiatives encourage individuals, groups or organisations to adopt healthier behaviour or make healthier choices.

Department for Primary Health

- Tailored services oriented towards prevention rather than cure
- Client oriented, quality/safety embedded
- Evidence based prevention guidelines
- Partnerships, multidisciplinary care teams including family doctors, nurses, nutritionists etc.

Primary care teams play a crucial role in providing integrated care. The *future* Primary Care through the reform will encourage preventive medicine modalities to be introduced in the form of NCD clinics, in addition to the services already available. The existing family doctors within the Health Centres can be trained in these various preventive medicine modalities which will be provided in clinics held at the Health Centres. Another alternative is to provide such clinics within the community or within specific settings such as schools or day centres and homes for the elderly. This could be achieved through collaboration with local councils, schools, NGOs and other organisations.

The list of NCD clinics or services to be provided or enhanced is as follows:

- Hypertension clinics - control and prevention of complications
- Diabetes clinics - control and prevention of complications
- Obesity clinic - guiding suitable reductions in the BMI and waist circumference for both adults and children. Specific clinics should be available to target specific age groups such as children, the elderly ect.
- Lipid clinic - cholesterol control and prevention of complications
- Mental Health Clinic- control and prevention of relapse
- Stroke Rehabilitation Clinic
- Smoking Cessation clinics
- Nutrition/dietary advice clinics
- Post-Myocardial Infarction Rehabilitation Clinic
- Anti-coagulation Clinic - maintenance of control and prevention of complications

The Action Plan will ensure that these clinics or services are provided as part of an integrated programme focusing on the needs of the individual, while ensuring that every opportunity is taken to maximise health gain.

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