

# Cigarette Smoking across Three Maltese Generations

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## Abstract

Cigarette smoking, currently the single most preventable cause of disease and death, is very common in the Maltese Islands. Various aspects of smoking among three different Maltese generations were investigated using a standardized questionnaire among 200 randomly chosen subjects from each of three age groups (16-21yrs, 40-45 yrs and 60-65 yrs). They were asked to answer questions regarding duration, amount, mode and effects of smoking and their attempts at quitting. They were also asked to undergo spirometry and expired CO measurement.

66.1% of 16-21 yr olds, 59% of 40-45 yr olds and 75% of 60-65 yr olds chosen participated in the study. 27.7% of the participants were smokers - this comprised 31.1% of the 16-21 yr olds, 34.8% in the 40-45 yr olds and 19.2% in the 60-65 yr older age subset. ( $p = 0.0105$ ). As a total study population 35 % of the males and 21% of the females ( $p = 0.0013$ ) were regular smokers. In the 16 –21 year olds 43.6% of the males smoked vs 20% of the females, while the gender differences for the other two groups were 32.7% males vs 36.5% females in the 40-45 year olds and 28.1% males vs 6.5% females in the oldest age group. The mean cigarette consumption in the 16-21 yr olds was significantly less than the other two age groups studied ( $p=0.0076$ ). Females were more likely to be heavier smokers in the 40-45 yr olds. There was no significant geographical distribution in smoking and the less skilled workers and unemployed were more likely to be smokers ( $p=0.0001$ ). 43.9% of the 16-21 year olds tried to stop smoking while 73.2% and 82.8% of the two older age groups tried even harder ( $p=0.0013$ ).

## Keywords

smoking, age-groups, gender

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Only 5.3 % of smokers sought medical help to try and stop smoking. Smokers had more chest symptomatology ( $p<0.0001$ ) but only the oldest age-group of smokers had decreased PEFR 19% of smokers suffered from asthma, 29% from ischaemic heart disease and 16% were diabetics.

The Maltese are quite heavy smokers across all ages and gender and most are not seeking medical help to try and stop the habit.

## Introduction

Cigarette smoking is currently the single most preventable cause of disease and death the world over. In 1996 WHO figures<sup>1</sup> showed that 42% of males and 24% of females in developed countries smoked regularly. The Maltese islands are no exception to this problem and various surveys carried out in the last two decades confirm how widespread this addictive habit is amongst the Maltese. An 1985 national census revealed that 40% of adult males and 10.2% of females were smokers<sup>2</sup> while in 1992 a survey carried out on a thousand randomly chosen Maltese adults showed that while males maintained a rate of 39.9%, over the ensuing seven years female smokers had nearly doubled to 18%<sup>3</sup>. The problem does not seem to be limited to Maltese adults as Montefort et al<sup>4</sup> demonstrated that 13.4% of 13- 15 year old schoolchildren participating in the Maltese part of the ISAAC study admitted that they smoked cigarettes, with an almost equivalent rate in both sexes.

The present study was carried out to investigate various aspects of smoking among three different Maltese generations using a standardized questionnaire so one could reliably make direct comparisons regarding the trends and attitudes of these different age-groups towards smoking. The age groups 16 – 21 years, 40 – 45 years and 60 – 65 years were chosen as these ranges would be distant enough from each other to show any major differences in smoking trends between different age strata in the Maltese society.

## Methods

### Questionnaire

After thorough literature review, a questionnaire (Appendix 1) was devised which contained various questions regarding duration, amount, mode and effects of smoking. We also included questions regarding influences which made the participant start smoking and whether he or she had tried to give up this habit, and if so by what method. A small pilot study

**Appendix 1: Questionnaire to determine the smoking habits of three different age-groups of Maltese people**

Age: \_\_\_\_\_ Locality: \_\_\_\_\_

Sex: \_\_\_\_\_ Occupation \_\_\_\_\_

Height: \_\_\_\_\_

**1) Do you currently smoke?** Yes/No  
If no go to question 5

**2) How many cigarettes do you smoke per day?**

1-5 cigarettes \_\_\_\_\_

6-10 cigarettes \_\_\_\_\_

11-20 cigarettes \_\_\_\_\_

21-40 cigarettes \_\_\_\_\_

more than 40 cigarettes \_\_\_\_\_

**3a) Have you tried to stop smoking?** Yes/No

**3b) If yes what method did you use?**

On my own \_\_\_\_\_

Pharmacist's help \_\_\_\_\_

Other medical help \_\_\_\_\_

Using medicinals \_\_\_\_\_

**4) Mode of smoking**

Do you inhale smoke from your cigarettes? Yes/No

Do you use filtered cigarettes? Yes/No

Do you smoke the whole of your cigarette? Yes/No

What time of the day do you usually start smoking? \_\_\_\_\_ Morning  
\_\_\_\_\_ Afternoon  
\_\_\_\_\_ Evening

**5) Have you smoked in the past?** Yes/No/Still smoke

**6) What influenced you to start smoking?**

An example from other family members \_\_\_\_\_

Peer pressure \_\_\_\_\_

Advertisements \_\_\_\_\_

Need to impart 'cool' image \_\_\_\_\_

Emotional factors \_\_\_\_\_

**7) Chest symptoms**

Do you cough on most mornings? \_\_\_\_\_

Do you produce sputum most days? \_\_\_\_\_

Have you wheezed in past 12 months? \_\_\_\_\_

Do you get short of breath on going up 2 flights of stairs? \_\_\_\_\_

**8) Do you suffer from**

Bronchial Asthma \_\_\_\_\_

Heart Disease \_\_\_\_\_

Diabetes Mellitus \_\_\_\_\_

Spirometry FVC \_\_\_\_\_ %predicted

FEV1 \_\_\_\_\_ %predicted

PEFR \_\_\_\_\_ %predicted

Exhaled CO Level \_\_\_\_\_ ppm

was carried out among ten of our colleagues to check whether any of the questions were ambiguous. The questionnaire was planned to be filled by a single interviewer who could help the interviewee with any difficulties he might encounter in answering the questions.

**Subjects**

Malta Information Technology and Training Services [MITTS] supplied us with a computer generated random sample from the whole population of 600 individuals and their addresses and telephone numbers – 200 from each age group to be studied i.e. 16 – 21 years, 40 – 45 years and 60 – 65 years.

A letter was sent to each of these individuals informing them about the study and that they had been randomly chosen to take part in it. A few days following the receipt of the letter, each individual was contacted by telephone and any question or difficulty were clarified. Once the individual consented to participate in the study, an appointment was fixed for the interviewer to visit the participant at home. During the visit the individual was asked the questions found in the questionnaire and a full spirometry was carried out using an Alpha Spirometer (Vitalograph UK). Expired carbon monoxide levels were measured for each participant using a carbon monoxide expiration meter (Micromedical UK). These were regularly calibrated using standard methods.

**Statistical Analysis**

All the data was analysed using EPI – info version 6 and statistical significance was determined using the Pearson Chi-square method.

**Ethical Approval**

Informed consent was obtained from each individual after these read and signed a consent form while in the case of participants under the age of 18 years, the consent form was signed by a parent or guardian. The study was approved by the ethical committee of the Medical Council of Malta.

**Results**

**Response rate**

The response rate of the individuals randomly chosen for the study was 66.8% as a group total, 66.1% for the 16 – 21 year old age group, 59% for the 40 – 45 year olds and 75% for the 60 – 65 subgroup.

**Total smokers in each generation**

27.7% of the participants were smokers - this comprised 31.1% of the 16 – 21 year olds while this figure increased to 34.8% in the 40 – 45 year old age group. In the 60 – 65 year older age subset the rate of smoking was 19.2%. The difference in smoking prevalence between the older two generations was statistically significant (p = 0.01).

**Table 1:** Amounts of cigarettes smoked daily according to generation and gender

Cigarettes per day	1-5		6-10		11-20		21-40		>40	
	males	females	males	females	males	females	males	females	males	females
16 to 21 yr olds	33.3%	42.9%	26.0%	36.0%	33.3%	21.0%	4.0%	0.0%	4.0%	0.0%
40 to 45 yr olds	16.7%	21.7%	11.1%	17.4%	22.2%	30.4%	44.4%	17.4%	5.6%	13.0%
60 to 65 yr olds	16.0%	0.0%	12.0%	75.0%	40.0%	25.0%	24.0%	0.0%	8.0%	0.0%

**Gender differences**

As a total study population 35 % of the males and 21% of the females (p = 0.0013) were regular smokers. In the younger generation i.e. the 16 – 21 year olds, 43.6% of the males smoked as compared to 20% of the females, while the gender differences for the other two groups were 32.7% males vs 36.5% females in the 40 – 45 year olds and 28.1% males vs 6.5% females in the oldest age group. (Figure 1)

**16-21 year old age group**

In this age group, there were 33.3% of male smokers and 42.9% of female smokers smoking 1 to 5 cigarettes per day. 26% of males and 36% of females smoked 6 to 10 cigarettes per day while 33.3% of males and 21% of females consumed 11 – 20 cigarettes daily. Only 4% of male smokers smoked 21 – 40 cigarettes per day and a similar proportion smoked more than 40 cigarettes per day. None of the female participant smokers in this age group smoked more than 20 cigarettes per day. The mean cigarette consumption in this group was significantly less than the other two age groups studied (p=0.0076).

**40-45 year old age group**

In this age group, there was a bigger number of heavy smokers with only 16.7% of male smokers and 21.7% of female smokers smoking 1 to 5 cigarettes per day. 11.1% of males and

17.4% of females smoked 6 to 10 cigarettes per day while 22.2% of males and 30.4% of females consumed 11 – 20 cigarettes daily. Amongst the more addicted smokers, 44.4% of male smokers and 17.4% of females smoked 21 – 40 cigarettes per day. The majority of 40 cigarette plus per day smokers were female at 13% vs 5.6% of male smokers in this age group

**60-65 year old age group**

In this age group, 16% of male smokers smoked 1 to 5 cigarettes per day while none of the females were such mild smokers. 12% of males and 75% of females smoked 6 to 10 cigarettes per day while 40% of males and 25% of females consumed 11 – 20 cigarettes daily. 24% of male smokers smoked 21-40 cigarettes per day while 8% smoked more than 40 cigarettes per day. None of the female participant smokers in this age group smoked more than 20 cigarettes per day.

**Geographic distribution**

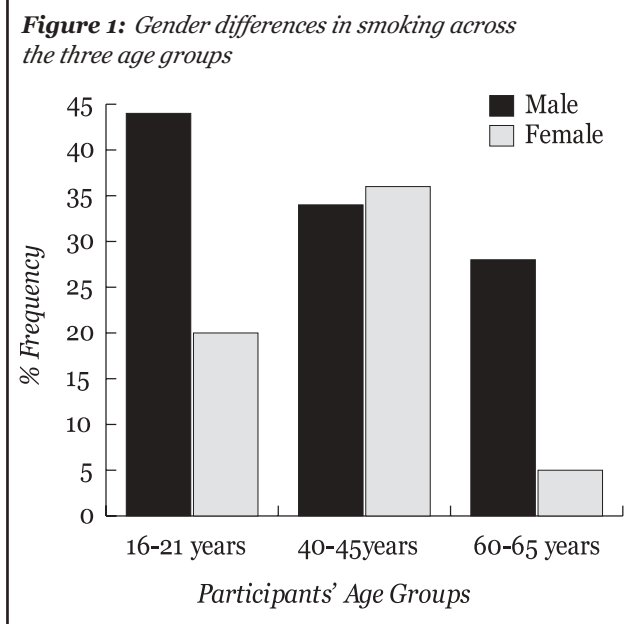
Although one could see that the highest rates of smoking were amongst the Gozitans (46%) and lowest in the central south region of Malta (17%), this variability did not reach statistical significance.

**Distribution of smokers by occupation**

Smoking was significantly higher amongst the unemployed (p = 0.0001) with the smoking rate in this group being 69% while this was followed by rates of 49% of partly skilled workers and 47% amongst unskilled workers. None of the professional class interviewed were smokers but it was interesting to note that 40% of this subgroup were ex-smokers.

**Factors influencing initiation of smoking habit**

Smokers across the three studied groups (68.6%, 59.7% and 60%) felt that they started smoking mostly due to peer pressure (p=0.0001). The two older age groups were more likely to have succumbed to the habit secondary to emotional factors (40 – 45 yr olds 25.8%; 60 – 65 yr olds 21.3%) than the 16 – 21 year olds (5.9%) A minority in each group (10%, 13% and 12% respectively) thought that they had started smoking because they wanted to emulate a family member while 14% of the 16 – 21 year olds and 7% of the 60 – 65 year olds started smoking to impart a ‘cool’ image. Interestingly none of the participants felt that cigarette advertising persuaded them in any way to initiate smoking.



### ***Time of day smokers started smoking***

Most of all the smokers tended to start smoking in the morning but this became more pronounced in the older age groups. In the 16 – 20 year olds 55% started smoking in the morning, 22.5% in the afternoon while another 22.5% started in the evening. 82.9% of the 40 – 45 year olds started smoking in the morning, only 4.9% started in the afternoon and 12.2% commenced smoking in the evening. The great majority (86.2%) of the 60 – 65 year olds smoked in the morning ( $p=0.0130$ ), 10.3% in the afternoon and only 3.5% in the evening.

### ***Methods of smoking***

In all three groups, more than 95% (97.5%, 97.6% and 96.6%) smoked filtered cigarettes. 75% of the 16 – 20 year olds, 90.2% of the 40 – 45 year olds and 79.2% of the 60 – 65 year olds admitted to inhaling the smoke while smoking while 72.5% of the 16 – 20 year olds, 73.2% of the 40 – 45 year olds and 62.1% of the 60 – 65 year olds 'smoked their cigarettes completely'.

### ***Attempts at stopping smoking and the success rates of such attempts***

43.9% of the 16 – 21 year olds tried to stop smoking while 73.2% and 82.8% of the two older age groups tried even harder ( $p=0.0013$ ). In fact the amount of ex-smokers increases with age (7.6%, 17.8% and 30.5%) ( $p=0.0014$ ). In the youngest age group, 51.9% of males and 28.6% of females attempted to stop smoking but whereas only 3.2% of the males succeeded, 11.4% of the females were successful. In the 40 – 45 yr olds 61.1% males and 82.6% females tried to stop the habit and 29.1% of the males and 7.9% of the females managed to do so. The oldest age group were the most perseverant with 80% of males and 100% of females trying to quit and 39.3% of the males and 17.7% of females being successful. Very few of all these smokers sought medical help to try and stop smoking (0%, 3% and 12.5% for the respective age groups).

### ***Adverse effects of smoking***

The smokers were more likely to have a morning cough ( $p<0.00001$ ), produce sputum on most days ( $p<0.0001$ ), experienced wheezing in the last year ( $p<0.0001$ ) and experienced shortness of breath on moderate exertion ( $p<0.0001$ ).

There was a gradual increase in difference in predicted FVC, FEV1 and PEFr between smokers and non-smokers across the three age groups but this only reached significance in the case of predicted PEFr for the 60 – 65 year olds where the difference reached 24.1%.

As expected, smokers had a higher mean expired CO at 15.03 ppm vs 3.55 ppm for non-smokers but there was no marked difference in expired CO between non-smokers who lived with a smoker and those who did not (3.99 vs 3.4 ppm).

### ***Concomittant medical conditions in smokers***

19% of the smokers across the three age groups studied said they suffered from asthma, 29% suffered from ischaemic heart disease while 16% of smokers were diabetics.

### ***Discussion***

This study carried out amongst the three chosen age groups confirmed that cigarette smoking is still very prevalent amongst the Maltese population. Although there did seem to be only a modest increase in the total prevalence of smoking as compared to a national census carried out in 1995<sup>5</sup> where 23.6% of the Maltese were smokers, as compared to the current 27.7%, what was most interesting were the different fluctuations in the gender prevalences of this habit. Whereas male smokers decreased from around 40% in 1985 to the present 35%, prevalence of cigarette smoking doubled in Maltese females increasing from 10.2% to 21%. This was most apparent in the 40 – 45 year old age group where not only did females outnumber male smokers but they also consumed most cigarettes per day. These changes are quite similar to those seen in other countries<sup>6</sup>. This gender difference is being reflected in our national cancer register where carcinomas of trachea, bronchus and lung used to have a male to female ratio of 94 : 5 in 1987 while in 1998 this had changed to 85:19<sup>7</sup>. This also suggests that females seem to be more susceptible to the induction of malignant processes of smoking<sup>8</sup> and also that this gender does not really seem to be aware of the consequences of this habit on their health<sup>9</sup>.

In the younger generation studied ie the 16 – 21 year olds, the boys were twice as likely to be smokers than their female counterparts but close to a third of all participants in this age group were smoking cigarettes regularly. Most of them were relatively light smokers with only 8% of males smoking more than twenty cigarettes per day. This could either reflect that, at this age, they would not have become so addicted to the habit or the state of their finances as regards available money to spend on cigarettes, which are always becoming more and more expensive. In fact only 55% of these youngsters started to smoke in the morning in contrast to the way most hardened smokers do. Financial factors could also explain why these young people are more prone to smoke the whole cigarette while the more mature and financially stable smokers do not. The fact that a lot of these youngsters smoke only in the evening when they tend to be socializing, could mean that they tend to smoke because of peer pressure<sup>10</sup> – a reason which was cited by 69% of this age group to be the initiating stimulus for them to have originally started smoking. However other factors such as emotional factors<sup>11</sup> and even weight control surely play an important role<sup>12</sup>. The significant majority of smokers in the older age groups tended to start smoking in the morning showing how well ingrained this habit of smoking becomes as time goes on .

In the middle-aged Maltese, there were the highest number



of smokers and the heaviest smokers among the three generations studied. In fact 44% of male smokers smoked more than twenty cigarettes per day but it was the females who were the most affected as they were twice as likely to smoke more than forty cigarettes daily than the menfolk. The females were also more likely to be smokers than males in this age group (36.5% vs 32.7%) and this would be in keeping with the gradual increase seen the world over in female smokers in the last twenty years<sup>6</sup>.

The oldest generation of participants in the study smoked significantly less than the 40 – 45 year olds. The females who persevered in smoking at this age tended to be mild smokers (6 – 10 cigarettes per day) in contrast to the male gender who tended to be the more persistent and heavier smokers. Although, like the youngest age group, these participants thought they had initiated smoking mostly due to peer pressure, they were more likely to have done so secondary to emotional factors – similarly to the 40 – 45 year old age group. Only a few felt that they started smoking in order to copy a family member but these 10% are reason enough for smoking parents to try and dissuade their children from smoking like themselves<sup>3</sup>. None of the people taking part in this study thought that they were enticed to start smoking in any way by advertisements, though the influence might have been too subtle for them to have noticed and might have affected them in other ways such as trying to impart a ‘cool’ image which seemed to have played a role in a good percentage of youngsters.

It is disappointing to see that a very small minority seek medical advice to stop smoking utilising pharmaceutical means or psychological support. Smoking cessation clinics are available in Malta but the National Health Scheme does not sponsor nicotine replacement therapy or bupropion and this could contribute to most smokers trying to stop smoking on their own with little success. We did note that there were more attempts at smoking with increasing age and an associated increase in success at ceasing this habit. Although the females tended to try more often to stop smoking, it was the male gender who were more likely to manage to ‘kick’ the habit .

The chronicity of the problems caused by smoking and the severity of the addiction of this habit are reflected by the significant difference in respiratory symptoms suffered by smokers when compared to non-smokers of similar age. These Maltese smokers also showed a gradual decrease in their lung

function tests but this was most apparent in the PEF<sub>R</sub> of the oldest age group studied, implying that it does take quite a long history of smoking for significant decreases in pulmonary function to occur. These respiratory symptoms did not seem to deter smokers who suffered from other medical conditions, even when these were respiratory in origin, such as asthma<sup>14</sup>.

This study has revealed that there is still much to be done in the field of health education regarding smoking and its effects amongst the Maltese as this habit is still quite heavily ingrained in our society at all ages. We must also try harder to teach these smokers that there is much one can do to stop smoking and that this can be done utilising modern means to make cessation easier and more successful. Till now we seem to have failed in both these areas.

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