



PUBLIC HEALTH IN ONCOLOGY: NICOTINE ADDICTION IN POLISH TEENAGERS

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Smoking: General Background

- **≈ 5 million smokers / 1.1 billion predicted to die in 2012 due to smoking related illnesses (rising to 10 million by 2030).**
- **Smoking is carcinogenic in 17 key organs according to IARC (eg. lungs, colon, liver, kidney, cervix, bone marrow etc.); also affects cardiovascular and lung disease development and other conditions.**
- **Average of 30% EU smokes; Greece at 40% is highest whereas Poland has 35% smokers (ie. around 13 million) resulting in 70,000 deaths in 2000 (12th place in the EU), compared to 650,000 deaths overall in the EU & 80,000 non-smokers exposed to passive smoking.**
- **Lung cancer claims >20,000 lives/year in Poland of which approximately 93% is related to smoking, (ie. 55/day).**
- **Incidence of lung cancer incidence is 40x higher in smokers than in non-smokers (despite passive smoking exposure)- returning to non-smoker levels only after 15 years after cessation; Overall 231,000 deaths/241,000 lung cancer cases in EU seen.**
- **Smoking rates are declining in the developed world, contrasting with dramatic increases seen in under-developed countries together with passive smoking.**



Smoking in children

- **Tobacco addiction in children most frequently starts <18yrs with 1/5th smoking before 10 yrs.**
- **Daily around 91,000 youngsters start; a trend, if maintained, leading to a predicted 200 million premature deaths due to smoking related disease.**
- **Known reasons for starting smoking early include;**
 - > **culture/tradition of individual countries,**
 - > **easy access to cigarettes,**
 - > **family smoking at home,**
 - > **the desire to be trendy (and to be on equal terms with one's peers),**
 - > **cigarette advertising and smoking seen on television, (the greatest media influence).**
- **Remedial actions limiting nicotine product consumption undertaken through many organisations incl. WHO, FCTC, NCCDPHP and the World Bank.**
- **In Poland a 'Keep Fit' programme recently launched by the Chief Sanitary Inspectorate targets youngsters for promoting healthy lifestyles including raising awareness on the dangers of tobacco and smoking.**



Aims & Objectives

- To investigate the incidence of smoking in teenagers attending middle-school in Poland.
- Assess the factors that can pose an increased risk of nicotine addiction together with exposure to the risk of contracting diseases associated with smoking.

Methods & Statistics

- Middle schools, (n=312), selected by simple random sampling without replacement (≈30 pupils per school ; representative of the territory of Poland.
- Sample; School children, (n=9,360), aged 12-17 years together with their parents. Sampling error was 1.17%: NB. Total schoolchildren of this age in Poland ≈1.5 million.
- There were 4,990 pupils from the 'Keep Fit' programme and 4,370 not participating.
- The study tool was the questionnaire where lifestyle behaviour was analysed including that of smoking.
- Pearson's Chi Squared (χ^2) test assessed if outcomes ≥ 2 on defined variable categories are independent of each other, (Null Hypothesis), or significantly not at set levels of $p=0.05$, 0.02, 0.01 or 0.001.
- In choosing the study units the following 4 criteria were adopted; location (divided according to rural and city schools), school year (first, second or third), gender and school's participation in the 'Keep Fit' programme.



POLAND

AREA

312 685 km²

POPULATION (2009)

38.5 mln citizens

ADMINISTRATIVE STRUCTURE

16 voivodships (provinces)

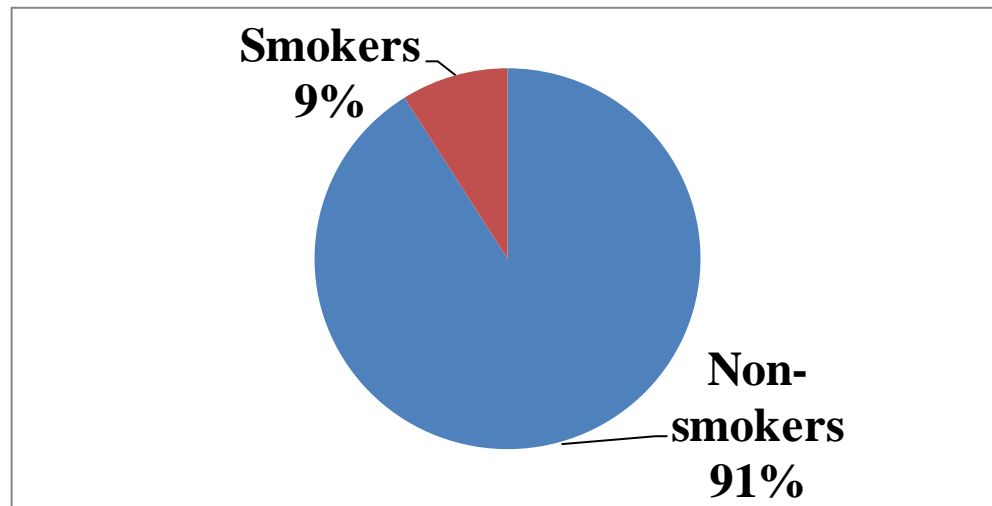
315 powiats (counties)





Results; Smoking amongst middle-school children in Poland vs. world

- In 2008 the Global Youth Tobacco Survey (GYTS) was published by WHO based on reports from 6 world regions regarding smoking in youth aged 13-15 years. This showed that around 9.5% of youth regularly smokes worldwide.
- According to this report in Poland for 2003 the figure was 18.6% which is double the results of our current study, (as shown below).





Results & Pupil Demography.

Socio-demographic variables		% studied
Age (yrs)	12-13	6.00
	14-15	64.00
	16-17	30.00
Place of residence	Town/city	66.00
	Country	34.00
Gender	Male	47.00
	Female	53.00

- **1:3 children live in the country & numbers of boys nearly = girls.**
- **Majority of tested pupils tested fell into the 14-15 age category but the fewest were found in the youngest classes.**
- **Pupils most frequently smoked (72% smokers) after school, when meeting friends away from home; of these 10% smoked secretly at home from parents.**
- **Majority of children smokers smoked for <2 years (74.5%), 1:5 smoked <1 year (19.5%) and \approx 6% were addicted to nicotine by smoking for over 2 years.**



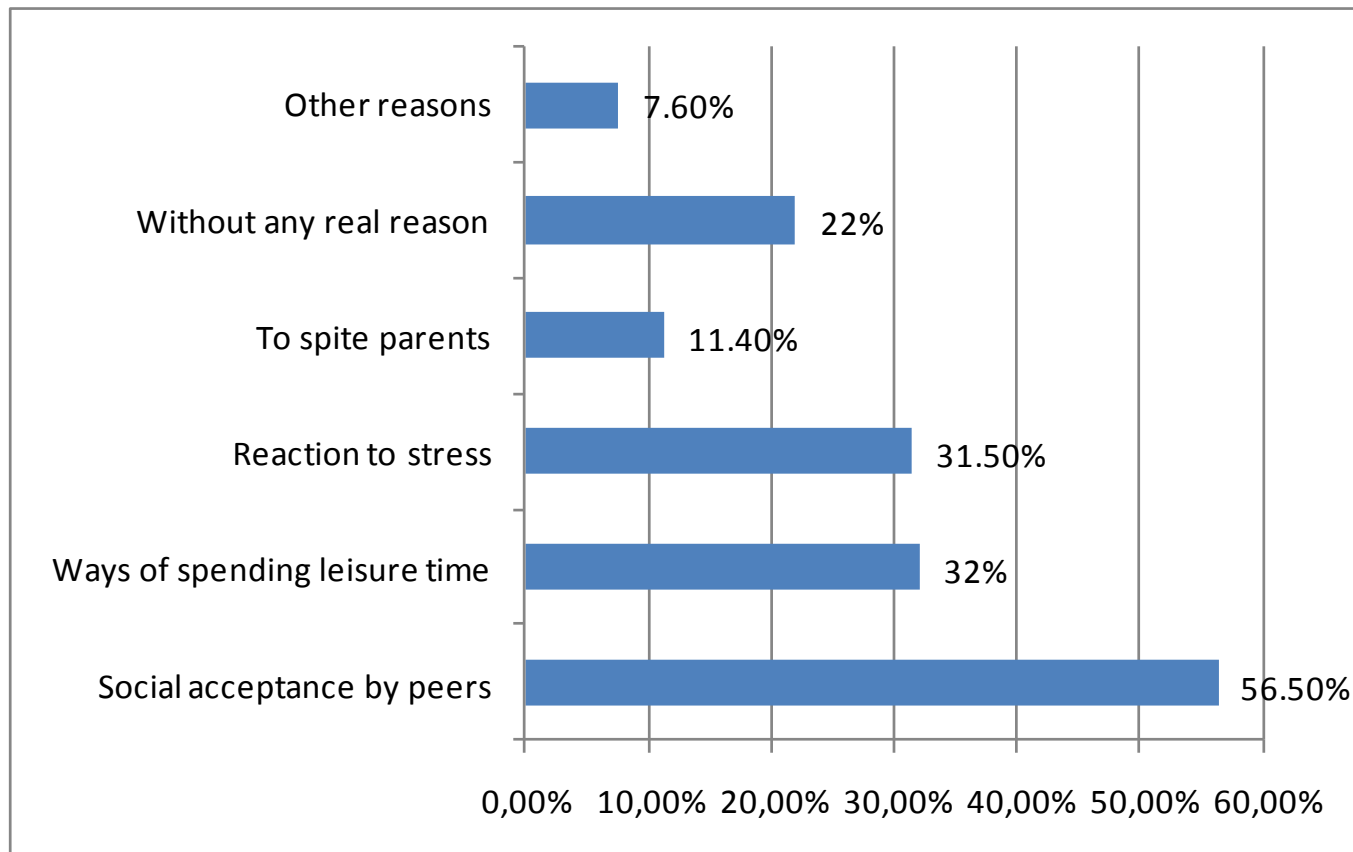
Results from children participating in the 'Keep Fit' programme.

School participation in the 'Keep Fit' programme		Numbers of cigarettes smoked daily by schoolchildren (%)			
		1-2	3-5	6-10	> 10
Yes		30.42	29.92	22.79	16.87
No		30.07	23.03	20.82	26.08
		P<0.05			

- **The proportion of smoking over 10 cigarettes daily was around 9% less in the 'Keep Fit' group than in the other and a greater amount of children, (85%), in the programme group declared that they didn't smoke on school premises.**
- **Of the 9% total that smoke 18% did so at school; this figure was significantly less, (15%), for pupils participating in the 'Keep Fit' programme.**



Reasons for taking up smoking in middle-school child smokers in Poland





Factors influencing children to start smoking in the USA

- **Socio-demographic risk factors in the USA for youngsters starting to smoke include;**
 - > a low socio-economic status
 - > being male and white
 - > having poorly educated parents and belonging to a single parent family.
- **Behavioural and personal factors increasing the likelihood of smoking include;**
 - > under-achievement in learning
 - > taking part in risky behaviour
 - > low self esteem and being more influenced by their peers
- **Environmental factors which may cause youngsters to smoke tobacco are;**
 - > smoking by parents, brothers/sisters, peers
 - > and if smoking is not forbidden at home.
 - > Parental smoking plays a large influence in children at elementary school.



Results; regional differences & parental smoking behaviour

- **The largest %-age of child smokers were seen in the Lubuskie and Zachodnio - Pomorskim, (Western Pomerania), provinces and the least from Małopolska (Lesser Poland) and Podkarpaciu (sub-Carpathia); See slide 5 for map.**
- **There were however no major differences in smoking between town and country schoolchildren irrespective of participation in the 'Keep Fit' programme and likewise no gender differences were observed.**
- **Barely 2% of parents admitted that their offspring smoked but 24.51% parents, (ie. 1:4), declared that they themselves smoked.**
- **Majority of smoking parents have been doing so for 10-20 years (68.9%) and \approx 10.5% have smoked for >3 years whilst the rest, (20.2%), have smoked since elementary school (ie. for over 20 years).**
- **A small number of parents smoke singly and had started recently (0.4%).**



Smoking amongst parents by gender, education and employment.

Socio-demographic features		Cigarette smoking %	
		Yes	No
Gender	Female	23.21	76.79
	Male	31.60	68.40
Education	Elementary	34.56	65.75
	Professional	33.56	66.44
	Secondary school	23.41	76.59
	Post-high school	19.97	80.03
	University degree	16.05	83.95
Employment	Full time	23.36	76.64
	Part time	25.40	74.60
	Casual work	34.81	65.19
	Retired on pension	30.88	69.12
	At home	25.23	74.77
	Seeking work / unemployed	39.92	60.08
	Farmer	19.45	80.55

- **Of parents smoking, 32% are men and 23% women.**
- **The better the education the less frequently smoking is declared where 34% of parents smoke with an elementary education compared to 16% that smoke having a higher education.**
- **The highest proportion of smokers occur in parents seeking work (38% women & 64% men) as well as those engaged in casual work (32% women and 53% men).**



Declared smoking amongst children and parental awareness of their smoking behaviour

- The answers of children declaring that they did not smoke matched those of their parents 99%.
- In contrast, the majority of parents (82%) declared that their smoking offspring did not smoke when in fact the reverse was the case.

Children smoking	Does your child smoke? (%)		Total
	Yes	No	
Yes	18.22	81.78	100.00
No	0.51	99.49	100.00
P<0.05			



Smoking in children and parents who smoke.

Children smoking	Parents smoking (%)		Total (%)
	Yes	No	
Yes	68.6	31.4	100.00
No	46.2	53.8	100.00
P<0.05			

- **A significant relationship was observed in smoking between children and their parents.**
- **Children that smoke have more frequently smoking parents than those children from homes where there is no smoking.**



Discussion & Conclusions

- In 2008 the Global Youth Tobacco Survey (GYTS) was published by WHO from 6 world regions on smoking in youth aged 13-15 years showing that around 9.5% of youth regularly smokes worldwide.
- The largest problem is seen in the European region where on average 19.2% of youth smoke (21.0% boys, 17.4% girls). The highest figures for individual countries being Bulgaria -33.1%, Czech Republic -31.1%, Latvia – 32.9%, Lithuania – 29.5%, Estonia -28.9% and Belarus -26.5%.
- According to this report in Poland for 2003 the figure is 18.6% which is double the results of our study.
- Our study demonstrates that the problem of nicotine addiction in Polish youth aged 12-17 years is thus less than the average for the whole European region.
- The strongest influences on starting to smoke were confirmed to be parental role models and the desire to belong and be accepted by their peer groups.
- Due to the positive effects of the educational ‘Keep Fit’ programme concerning smoking in Polish schoolchildren, as seen in this study, it is suggested that it would be of great benefit if other public health institutions and the media to engage in similar actions.