

# Smoking Habits and Attitude to Smoking in the Study Population of the MONICA Project Augsburg

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## Introduction

One of the main hypotheses of the WHO-MONICA-Project is whether and how far changes in incidence and mortality in cardiovascular disease are related to changes in risk factor levels or changes in single risk factors in defined populations over a ten year period [1].

Therefore it is necessary to have detailed information about every single risk factor in the study population to detect changes over time. Main risk factors for cardiovascular disease are hypercholesterolemia, hypertension and smoking. Purpose of this report is to describe the smoking status of the study population of the MONICA Project Augsburg, Federal Republic of Germany (FRG).

## Methods

All specifications about the smoking status are derived from the first MONICA-Augsburg survey conducted in 1984/85. This was a cross-sectional study based on an age and sex stratified two stage cluster sample of 5312 subjects, age 25–64. Non available were 243 persons, 4022 participated. The study area comprises the city of Augsburg and the two surrounding 'rural' districts. Study design, description of the study area, sampling methods, and first results have been described elsewhere [2, 3, 4].

From all 4022 participants, information on smoking habits was available. Data were collected with a standardized questionnaire during an interview by specially trained medical personnel.

Persons were classified as 'current cigarette smokers' when reporting present cigarette consumption. This group was further subdivided into 'regular' and 'occasional' smokers; 'occasional' meaning usually less than one cigarette per day, 'regular' meaning usually one or more cigarettes per day. 'Former' smokers stopped smoking in the past and were not presently consuming any cigarettes. 'Never' smokers denied also smoking in the past. Consumption of tobacco products other than cigarettes was asked separately.

## Results

### Smoking status of the study population of Augsburg

The prevalence of 'regular' cigarette smoking in the study area of Augsburg is dependent on age and sex. Overall, 35.6% of men and 18.2% of women reported belonging to this group (table 1).

Tab. 1. Estimated prevalence and amount of cigarettes smoked per day for current regular cigarette smokers, by sex and age. MONICA Survey Augsburg 1984/85.

	N	Prevalence %	95%-CI %	Amount of cig. smoked/day $\bar{x}$
Men	2022*	35.6	33.1–38.1	20.9
25–34	464	43.4	37.9–48.9	20.4
35–44	485	35.7	30.8–40.7	23.7
45–54	538	31.5	26.8–36.0	21.1
55–64	535	29.1	25.0–33.2	16.5
Women	1999	18.2	16.3–20.2	14.2
25–34	463	28.9	24.1–33.7	14.0
35–44	523	20.1	16.1–24.0	14.6
45–54	515	14.1	10.8–17.5	14.9
55–64	498	8.8	5.9–11.6	13.1

\* 1 missing value

The prevalence of regular cigarette smoking is much higher among men than women and among younger than older people. In the 25–34 year old subjects, 43.4% of men and 28.9% of women are regular smokers. Regular cigarette smoking decreases with age in both sexes, coming down to 29.1% and 8.8%, respectively.

The prevalence of 'occasional' smoking is 4% for both, the male and female population. Occasional smoking of cigarettes is also more common in young age.

Figure 1 represents the smoking status for men and women by age including 'former' and 'never' smokers.

Only 26% of men but 62% of women stated that they had never smoked during their lifetime. The percentage of never smokers in men ranges between 18 to 30% at different ages. In women this percentage is much higher reaching from 45.2% in the youngest up to 77.4% in the oldest age group.

The proportion of 'former' smokers amounts to 32% in men and 16% in women. Close to one half (45.9%) of men at age 55–64 belong to this group.

In men, 2.5% are smokers of other tobacco products such as cigars, pipe, cigarillos; women do not consume such products.

Male regular cigarette smokers take up their smoking habit on the average three years earlier than women. Their mean age at the beginning of smoking is at 18.1 years, in women at 21.3 years. This difference is varying in different age groups. Onset of cigarette smoking

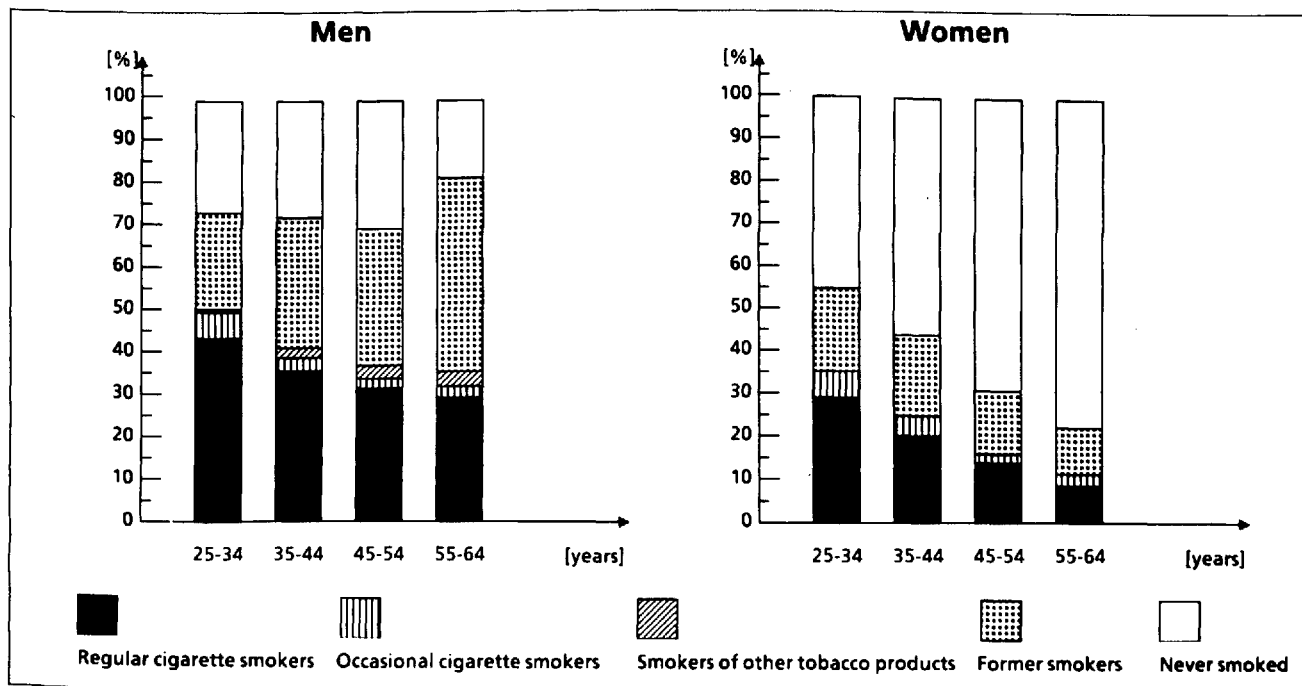


Fig. 1. Smoking status by sex and age. MONICA Project Augsburg: Survey 1984/85.

in both sexes is nearly the same in the 25-34 year old subjects: in men at age of 16.9 and in women at 17.5 years. This minimal difference increases with age. In the 55-64 year old participants the difference is on the average more than 6½ years: men start at 19, women at 25.6 years.

#### Cigarette consumption - amount, nicotine and tar level

The daily consumption of cigarettes in women is on a much lower level than in men (table 1). The mean number for male regular smokers is 20.9 cigarettes per day as compared to 14.2 in women. The peak of average daily cigarette consumption is reached by men, age 35-44, although regular smoking prevalence is considerably lower than in the youngest age group. Such effects are not present in women. This is also reflected

Tab. 2. Estimated means of nicotine and tar (mg) consumed per day for current regular cigarette smokers, by sex and age. MONICA Survey Augsburg 1984/85.

	n	Amount per day (mg)	
		nicotine $\bar{x}$	tar $\bar{x}$
Men	658	16.9	276.5
25-34	189	16.9	273.6
35-44	170	19.3	317.1
45-54	157	16.5	272.1
55-64	142	13.0	212.9
Women	399	9.7	159.4
25-34	129	9.9	160.9
35-44	102	9.8	161.4
45-54	69	9.6	159.1
55-64	39	9.0	150.0

by the prevalence of heavy smoking, i. e. more than 20 cigarettes per day, in that more than 40% of the 35-44 year old men belong to this group. The percentages in the other age groups are considerably lower. Heavy smoking in women is comparatively rare, ranges from 14% (25-34 years) to 6.4% (55-64 years).

Analyzing regular cigarette smokers with regard to the daily nicotine and tar exposition (nicotine and tar level of the cigarette brand smoked multiplied by the number of cigarettes/day) a similar association for age and sex emerges (table 2).

The mean amount of nicotine and tar consumed per day is 17 mg and 277 mg in men and 10 mg and 159 mg in women, fairly constant in all female age groups.

#### Market share-overview

An overview of the nine most frequently smoked cigarette brands in the study area of Augsburg (calculated by the number of cigarettes smoked of these brands) compared with market shares of these brands published by the German cigarette industry in 1984/85 [5] is given in figure 2.

The three leading brands in the Federal Republic of Germany have a medium nicotine and tar level (0.8/13 mg). All leading brands except 'Reval' are cigarettes with filters. Consequently the percentage of filter cigarettes smoked is very high (87% in men and 98.7% in women).

Approximately every third of all regularly smoking women prefer low yield cigarettes (i. e.  $\leq 0.8$  mg nicotine and  $\leq 10$  mg tar) as compared to every sixth smoking men. More than 10% of male smokers consume high yield brands (i. e.  $> 10$  mg nicotine and  $> 14$  mg tar) in contrast to less than 1% in women.

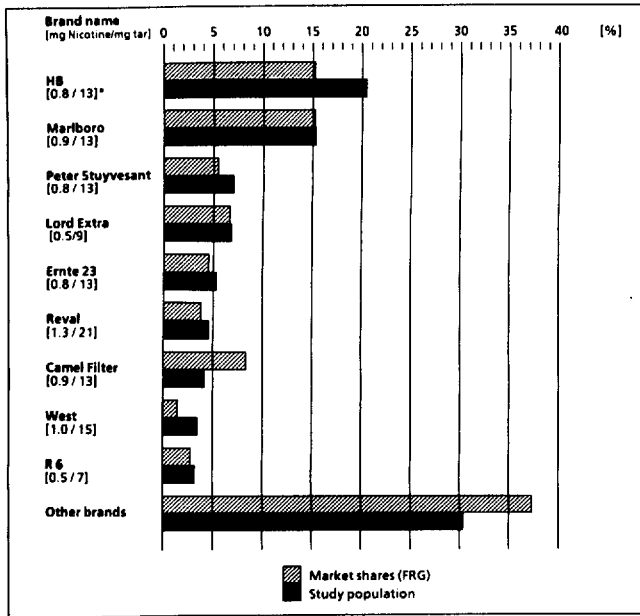


Fig. 2. Percentage of the nine most frequently smoked cigarette brands. Market shares (FRG) compared with consumption in the study population. MONICA Project Augsburg: Survey 1984/85.

**Attempts to change smoking habits**

All regular smokers were asked whether they had attempted to change their smoking habits in the last 12 months, for example attempting to smoke a cigarette brand with lower nicotine and tar values, to reduce the amount of cigarettes consumed daily or to quit smoking. The results are given in figure 3.

In both sexes the percentage of those, who are willing to change their smoking habits is very high and shows the willingness of smokers to change their smoking behavior. The bottom of each column contains the percentage of those who have attempted to quit smoking but have not succeeded. The proportion of female smokers attempting to quit smoking is striking (47.8%). Close to one half of all male smokers age 35-44 and particularly those who are the heaviest smokers, had not made any attempt to change their smoking habits.

In each age and sex group about 60% of all current regular smokers affirmed their willingness to quit smoking in the future. But a much smaller part of these smokers intends to change their behavior already in the next year.

**Discussion**

The MONICA-Augsburg findings are well comparable with those from other studies in the Federal Republic of Germany [6, 7, 8]. A report from the Swiss MONICA-Project [9] is also largely in agreement with these results, however, smoking of other tobacco products such as cigars and pipes contributes much more to the prevalence of smoking in the Swiss population. This was especially the case in older men. Smoking of cigarettes is still more common in men than in women, at least for the age-groups under study here. This is reflected not only by the higher prevalence of regular smokers in men but also by the fact that men smoke on the average markedly more cigarettes per day than women.

While never-smokers constitute a rather fixed propor-

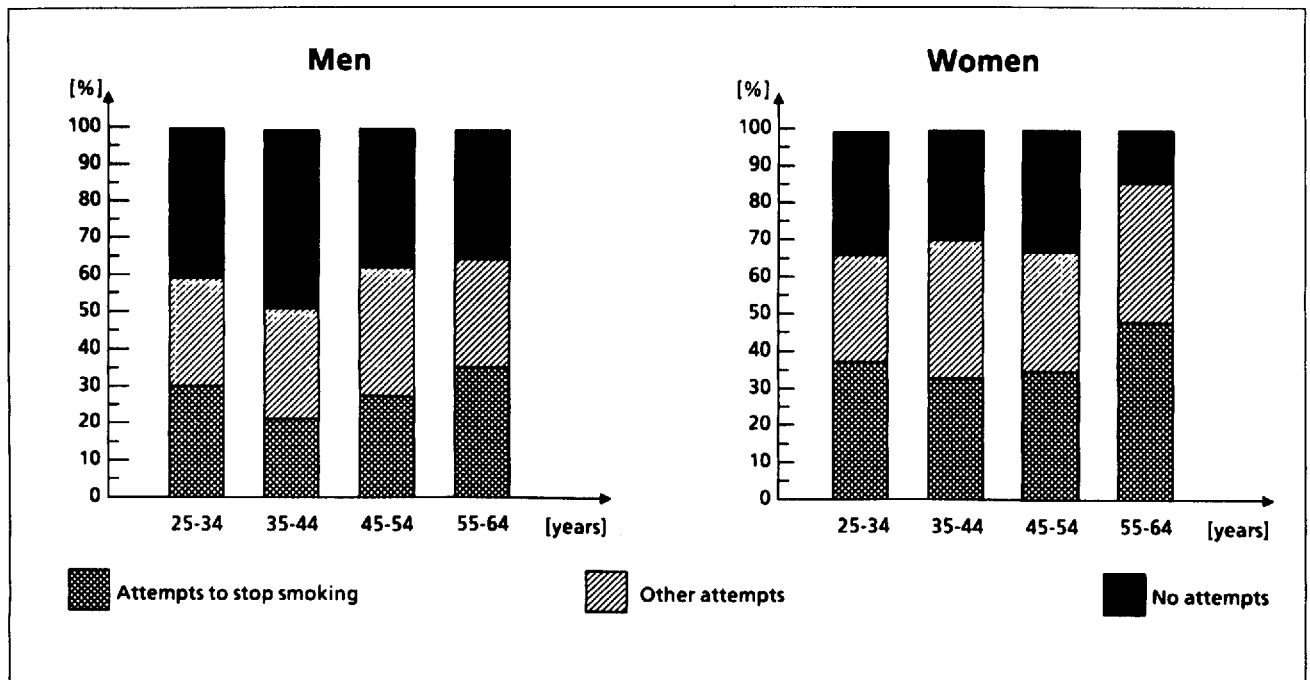


Fig. 3. Percentage of regular smokers attempting to change their smoking status in the past year, by sex and age. MONICA Project Augsburg: Survey 1984/85.

tion in each age-subgroup in men, the percentage in women is consistently decreasing from old to young age. This indicates in our view a cohort phenomenon in that in former decades smoking in women was less socially accepted than today. Differences in mean age at onset of smoking between sexes may also be explained in this way.

Sex-related differences are substantial with regard to the amount of nicotine and tar to which smokers are exposed. Not only that in men smoking is more common and that they smoke more frequently during the day, they also prefer higher yield cigarette brands. Not surprisingly there were fewer attempts to quit smoking among men than women. Good agreement of market share analyses provided by the tobacco industries with brands and daily consumption numbers reported by the study participants supports the validity of the information obtained in our study.

The study design of MONICA-Augsburg comprises a cohort study with follow-up of participants of the first survey (start of follow-up examinations in October 1987). This design provides the possibility to analyse possible changes in smoking habits and to detect determinants of these changes.

The finding of such determinants in connection with the willingness of the population to change their smoking behavior will hopefully provide informations to establish suitable education and intervention programs.

#### Summary

Data concerning smoking habits were derived from the first MONICA-Augsburg survey 1984/85 based on a random two stage cluster sample of the 25-64 year old population of the city of Augsburg and the two surrounding rural districts (n = 5312). Data were gathered by a standardized interview. Response was 79%. Overall, about 36% of men and 18% of women are regular cigarette smokers (i. e. smoking more than one cigarette per day). In both sexes smoking decreases with increasing age. In men 43% of the 25-34 year old participants are regular smokers and 29% in the age group 55-64. In women 29% of the youngest age group but only 9% aged 55-64 are current regular smokers.

In male regular cigarette smokers the mean amount of cigarettes consumed per day is 21, in women 14 cigarettes. The mean amount of nicotine and tar consumed per day is 17 mg and 277 mg in men, 10 mg and 159 mg in women. On the average men start smoking at the age of 18 and women at the age of 21.

In both sexes the percentage of regular smokers, who are willing to change their smoking habits, is very high. In each age and sex group about 60% of all regular smokers affirmed their willingness to quit smoking in the future. It is hoped, that this willingness of the population to change their smoking behavior will be supported by suitable education and intervention programs.

#### Zusammenfassung

##### Rauchgewohnheiten und Einstellung zum Rauchen in der Bevölkerung des Studiengebietes Augsburg

Die Basisdaten zum Rauchverhalten im Studiengebiet Augsburg wurden 1984/85 im Rahmen der 1. Querschnittsstudie bei einer zweistufigen Zufallsstichprobe der 25- bis 64jährigen Bevölkerung mit Hilfe eines Fragebogens im Interview erhoben. Die Beteiligung an

dieser Untersuchung lag bei 79%. Insgesamt rauchen fast 36% der Männer und 18% der Frauen regelmässig Zigaretten (regelmässig, d. h. gewöhnlich mehr als eine Zigarette pro Tag). Bei beiden Geschlechtern nimmt das Rauchen mit zunehmendem Alter kontinuierlich ab, bei den Männern von 43% in der jüngsten, auf 29% in der ältesten Altersgruppe, bei den Frauen von 29% auf 9%. Der durchschnittliche Konsum liegt bei den regelmässig rauchenden Männern bei 21 Zigaretten täglich und bei den Frauen bei 14. Die durchschnittlich aufgenommene Nikotinmenge ist bei den Männern 17 mg und bei den Frauen 10 mg pro Tag. Die täglich aufgenommene Teermenge beträgt 277 mg bei den Männern und 159 mg bei den Frauen. 87% aller Männer und 99% der Frauen rauchen Zigaretten mit Filter. Im Durchschnitt beginnen Männer mit 18 Jahren, Frauen mit 21 Jahren zu rauchen. Der Prozentsatz der regelmässigen Raucher, die gerne mit dem Rauchen aufhören wollen, beträgt bei beiden Geschlechtern und in allen Altersgruppen über 60%, nur rund 40% haben sich dies jedoch schon für das kommende Jahr vorgenommen.

Die Bereitschaft, die Rauchgewohnheiten zu verändern, ist offenbar dank Aufklärung, Gesundheitserziehung und -beratung in der Studienbevölkerung vorhanden. Es ist eine Aufgabe aller Verantwortlichen, wirksame Strategien zur Raucherentwöhnung zu entwickeln.

#### Résumé

##### Habitudes et attitudes concernant la consommation du tabac dans la population d'Augsburg

Les données de base sur les habitudes tabagiques dans la région d'Augsburg ont été prélevées par sondage, effectué en deux étapes dans le cadre d'une première étude transversale, parmi une population âgée de 25 à 64 ans. 79% des personnes interrogées ont participé à l'interview.

36% des hommes et 18% des femmes fument régulièrement la cigarette - d'habitude plus d'une cigarette par jour. Chez les hommes autant que chez les femmes l'habitude de fumer décroît avec l'âge; de 43% à 29% chez les hommes et de 29% à 9% chez les femmes. Le taux moyen de consommation s'élève à 21 cigarettes chez les hommes qui fument régulièrement et à 14 cigarettes chez les femmes. La quantité moyenne en nicotine absorbée est de 17 mg chez les hommes et de 10 mg chez les femmes, celle en goudron est de 277 mg chez les hommes et de 159 mg chez les femmes. 87% des hommes et 99% des femmes fument des cigarettes filtres. Les hommes commencent à fumer à l'âge de 18 ans en moyenne, les femmes à 21 ans. Le taux des fumeurs habituels qui aimeraient arrêter se chiffre à 60% dans tout groupe d'âge; 40% même envisageait de le faire déjà l'année suivante. Grâce à l'éducation médicale de la médecine préventive la population en question se montre favorable à changer ses habitudes quant à la consommation du tabac. Tous les responsables auront la tâche de développer une stratégie efficace de désintoxication.

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