Smoking problem in Indonesia

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Abstrak

Kebiasaan merokok merupakan masalah kesehatan pentin g di Indonesia . Sampai 60% pria Indonesia dan sekitar 4% perempuan di 11egara kita punya kebiasaan merokok. Kadar tar dan nikotin beberapa rokok kretek ternyata juga cukup tinggi. Selain dampak kesehatan rokok juga punya dampak buruk pada ekonomi, baik tingkat individu maupun keluarga . Dari sudut kesehatan, kendati data morbiditas dan mortalitas berskala nasional sulit didapat, data dari berbagai kota menunjukkan timbulnya berbagai penyakit akibat rokok seperti kanker paru , PPOK, gangguan pada janin dan sebagainya. Masalahnya lagi, kebiasaan merokok telah dimulai usia sangat muda di Indonesia. Pada tulisan ini disampaikan ju ga hambatan-hambatan dalam prog ram penanggulangan masalah merokok serta hal-hal yang perlu dilakukan untuk meningkatkan program penanggulangan yang ada. (Med J lndones 2002; 11: 56-65)

Abstract

Smoking is an important public health problem in Indonesia. Up to 60% of male adult population as well as about 4% of femal e adult population are smokers. In fact, some of Indonesian kretek cigarettes have quite high tar and nicotine content. Besides health effect, smoking habit also influence economic status of the individuals as well as the family. In health point of view, even though reliable nation wide morbidity and mortality data are scarce, report from various cities showed smoking related diseases, such as lung cancer, COPD, effect of pregnan cy, etc. Other problem is a fact that smoking habit start quite in early age in Indonesia. This article also describe fa ctors complicate smoking control program as well as several things to be done to strengthen smoking control pro g ram in Indonesia. (Med J Indones 2002; 11: 56-65)

Keywords: smoking, Indonesia, impact

The Republic of Indonesia, which consists of approxi mately 17,000 islands, had a population of 210 million; it is the fourth most populous country in the world after China, India, and the United States with hundred s of ethnic groups and language / dialects being practices in the country. An estimated 55.4 million persons (31 % of the population) were living in urban areas in 1990, compared with 73.4 million (36% of the population) in 1997.'-2·[3] All of these factors complicate tobacco-control measures in Indonesia .

Smoking Pattern

Table I compiles the results from several studies on smoking behavior in Indonesia. The percentage of current smokers among males ranges from 30.2% to 72%, with the highest percentage belong to the drivers of public buses in Jakarta. Among females, the percentage ranges from 1.5% to 9.7%.

The Indonesian Smoking Control Foundation ("LM 3") compiled a meta-analysis study on smoking patterns m Indonesia.[14]

The conclusions of the meta-analysis study performed by "LM3" included the following:[14]

1. The studies found that 59.04% of males over ten years of age in the 14 provinces in Indonesia were currently smoking. Among females over 10 years of age, 4,83% were current smokers.
2. There was a negative correlation between the level of education and the percentage of current smokers.
3. On average, current male smokers consume almost ten cigarettes each day, while female current smokers consume around three cigarettes each day.

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4. Among both current and former smokers, males or females, the freq uency of smoking was still fairly mild, less than 200 score indexed by mu ltiplication of nu mber of cigarettes and length of smoki ng.
5. Ex-smokers generally reported smoking h igher n u mbers of cigarettes than current smokers. In males i t was 1 3 versus 10 cigarettes daily, and in females it was more significant at 6.2 versus 3 cigarettes dai l y.
6. The average of ounces of tobacco per week was 0.79 in cu rrent users, and 1.42 in ex-users.
7. Clove-flavoured cigarettes *(kretek)* were the favourite choice of smokers in Indonesia. For male current smokers, 84,31% preferred *kretek* cigarettes, as did 79,42% of the female smokers. Similar figures were found in former smokers, as 84,31% of the males and 72.94% of the females preferred the clove cigarettes.
8. For both current or former smokers, the age of smoking initiation were quite you ng. Females tend to start to smoke at the older age.

Table I . Percentage of Current Smokers i n some studies i n Indonesi a

No.	Study -year -investigator	Question	N	Ages	Males	Females	Total
	Survey on Eye and ENT Heal th 1994-1996 in 7 Provinces, MOH, R I[4]	Do you currently smoke?	14071	J 0 years and older	48,34%	3,16%	22,68%
	Indonesian Family Life Survey 1993 m l 3 Provi nces LD-FEU I, Rand Co[5]	Have you ever smoked?	14638	10 years and older	67,70%	9,70%	36,50%
	National Household Survey, Module on Susenas, J 995, in 5 Provinces, MOH, R I"	Have you smoked in the past month?	65664 HH	10 years and older	45,00%	1,50%	22,90%
4	Prospecti ve Study on Public Health, Pasar Rebo, Cipayu ng & Ciracas, East Jakarta 1993/94, Fae of Public Health – UI[7]	Does the head of your house- hold smoke?	17349	Head of HH (adult)			30.20%
5	Smoking And Its Socioeconomic Aspects In Jakarta, 1981, Soekidjo, Siregar, Wibowo. Fae. of PH – UI	NA	250	10 years and older			64.40%
6	Effect On Smoking Deceased Program Among The Smoker -Workers In St.Carol us Hospital, Jakarta, 1995, J udi n. Tanju ng, Fae. of PH – UI"	NA	449	Adult	48,00%		48,00%
7	Relationshi p Between Habit On Cloves Smoking And Dental Destruction, A mong The Dri vers Of PPD Company In Jakatta, 1992, Soetiarto '[0]	Do you smoke?	3386	Adult	72%		72%
8	Action on smoki ng, in: Compi btion of papers on Cancer Problem (Ku mpulan Naskah Masalah Kan ker), · Hoepoedio, 1981[11]	NA	1000			2,1%	64,4%
9	Proportion Of Smokers Among The Male Employees In The Office Of Di tjen Bin kesmas, MOH, 1996 Syafranelsar, Fae. of PH - Ul[11]	Have you ever smoked?	186	Ad ult	50,0%		50,0%
10	Study On Knowledge, Atti tude A nd Behavior On Smoking, Among The Pupi ls of Elemen tary School Grades V A nd Y I, In East Jakarta 1992, Shebubakar, Fae. of Medicine – Ul[13]	Do you smoke?	431	Grade 5 and 6 (Primary School)			12,76%

(-) : Not avai lable / not calcul ated

The above data show no significant differences when compared with the WHO (1997) estimation, where in Indonesia the prevalence of current smokers was reported to be 53.0% of the males and 4% of the females. But it should be noted that the WHO figures were for people over the age of 15 years.[15]

The Indonesia Household Health Survey in 1980 showed that about 54% of males and about 3% of the females over ten years of age were regular (daily) smokers. A similar survey carried out in 1986 reported similar prevalence rates (53% of males, 4% of females). Other surveys carried out during he 1980s in Lombok, Jakarta, and Yogyakarta reported male prevalence levels of 75%, 65%, and 61%, respectively, and female prevalence levels less than 5% (except for Jakarta where 9.8% of the females are smokers). Nationally, the prevalence of smoking is approximately 60% for men and 5% for women.[17]

According to a 1985 survey in Semarang, 36% of doctors smoked, as did 79% of paramedical personnel. Almost all (96%) of the "peddle rickshaw" drivers in the survey smoked, as did over half (52%) of government civil servants. A 1992 survey of medical students revealed that 8% of males and 1% of females were daily smokers, while 39% of males and 15% of females were occasional smokers.

The Indonesian Household Health Survey in 1995 was one of the biggest health survey performed in Indonesia with over 200,000 respondents.[6] Among its findings were the following:

1. . The prevalence of smoking in the male population (10 years old and above) were 45% (daily smoker),
   6.3% (occasional smoker) and 3% (former smoker). For the female population, the figures were 1.5%, 0.5% and 0.2%, respectively.
2. For people 20 years of age and above, 61.2% were regular smokers, and 7.5% were occasional smokers. The prevalence in urban areas was higher than the rural areas, and the prevalence decreased with higher levels of education.
3. For 20 year old and above, 47.8% of the respondents consumed 11- 20 cigarette per day, and 5.3% consumed more that 21 cigarettes per day. On average, 3.9 cigarettes were consumed by a smoker per day, or 1,427 cigarettes per year.
4. In urban populations, 12.1% of the respondents consumed filtered cigarettes, 3% non-filtered cigarettes, 59.8% smoked *kretek* cigarettes, 20.8% smoked non-filtered *kretek* cigarettes, 0.3% consumed cigars, 3.8% rolled their own cigarettes, and 0.1% smoked tobacco using a pipe. The comparative numbers for the rural population are as follows: 11.6%, 2.8%, 33.7%, 24.9%, 0.6%, 25.4% and 0.5% respectively.

Most of the tobacco consumed in Indonesia is in the form of cigarettes, and between 85% and 90% of all cigarettes smoked in Indonesia are *kreteks*. The cigarette market share of *kreteks* increased from about 30% in 1974 to about 90% in the 1990s. Since the early 1970s, the per-capita adult (over 10 years of age) consumption of cigarettes (all forms) has more than doubled, from 500 to 1180 per adult. A survey carried out in Jakarta in 1981 estimated that each smoker consumed (on the average) twelve cigarettes each day. About 5% of all smokers smoke more than 20 cigarettes a day.

Table 2. Consumption of manufactured cigarettes

Year	Annual average per adult (15+)
1970–1972	500
1980-1982	950
1990-1992	1180

Tar levels in domestically grown Indonesian tobacco are high. In 1983, the average tar content of 18 brands of *kretek* cigarettes was 58.0 mg (range 41 - 71), while the average nicotine content was 2.4 mg (range 1.3 - 3.2). These are substantially higher than levels usually found in industrialized countries. About 73%[16] of manufactured cigarettes are filter-tipped. Table 3 shows the tar, nicotine and Carbon Monoxide (CO) content of some *kretek* cigarettes in Indonesia. It is particularly interesting to compare the differences in the levels of the domestic and exported products of the same brands of cigarettes.

Production and Economic Impact

In 1990, 183,785 hectares of land were set aside for tobacco farming, which was down from 288,000 hectares in 1985. Between 1% and 2% of all arable land in Indonesia is used to grow tobacco. Between 1990 and 1992, Indonesia grew approximately 2.0% of all the tobacco in the world. In 1994, Indonesia produced about 180,000 million cigarettes (about

3.3% of the world's production), which was up from 83,900 cigarettes in 1980. This increase in cigarette production is largely a reflection of the dramatic increase in the production of machine-made *kretek* (clove/tobacco mix) cigarettes that have largely replaced hand-to!led cigarerteL.[18]

In 1992, Indonesia imported 21,650 tons of raw tobacco (accounting for 1.4% of all imports), while exporting 18,900 tons (about 1.1% of global exports). Indonesia imported 15 million cigarettes and exported 15,000 million cigarettes, or 2.2% of global exports.

In 1990, the costs importing tobacco leaf and cigarettes amounted to US$ 42.1 million (0.1% of all import costs), compared with US$ 17 million in 1985. In 1990, Indonesia earned an estimated US$ 124.6 million from tobacco exports (0.4% of all export earnings), up from approximately US$ 48.2 million in 1985. On the other hand, Indonesian cigarettes production could be seen in figure 1, which showed the total production in the year 2000 was 237,206,000,000 cigarettes a year, while in 1995 it was 204,365,000,000 a year.

Table 3. Tar, nicotine and CO content of *kretek*

No	Brand Name	Concentration / *Kretek* (mg)		
		Nicotine	Tar	CO
I	Gudang Garam Internasional	3.17	57.02	26.09
2	Gudang Garam Surya	3.08	52.87	23.85
3	Bentoe! Intemasional	2.35	47.37	21.51
4	Djarum Super	2.31	53.98	27.61
5	Perdana Super	2.42	61.09	36.95
6	Filtra lOOs	2.17	49.84	25.24
7	Gudang Garam King Size 10	2.96	62.2	31.23
8	Dji Sam Soe	2.24	42.29	25.05
9	Sampoerna A Mild	1.26	18.05	9.84
10	Sampoerna A Exclusive	l.91	34.13	16.37
II	Bentoe!Merah	2.76	44.25	20.48
12	Wismilak	3.13	56.48	23.92
13	Minak Jinggo	2.07	53.4	25.59
14	Gudang Garam Surya 18	2.69	46.09	19.37
15	Bentoel Intenational Extra Lights	l.91	33.24	21.52
16	Bentoel International Mild	1.23	41.06	19.21
	EXPORT			
I	Dji Sam Soe	0.75	11.92	4.19
2	Sampoerna A Exclusive	0.8	11.11	6.37
3	Sampoerna A Mild	0.63	10.78	7.32

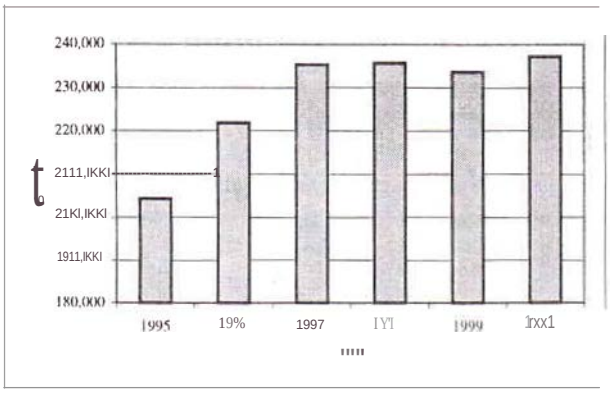

Figure 1. Indonesian cigarettes production

About 214,300 workers were engaged full-time in the tobacco-manufacturing industry in 1989. The Indonesian *kretek* industry ranks as the second largest employer after the Government. Figure 2 below showed tax fee target from cigarettes, which showed that in 1995/1996 it was only 3.3 quintillion (thousand billions), in 2000 it was increased to 10,3 thousand billions and in 2002 it was expected to be 22.4 thousand billions rupiah.

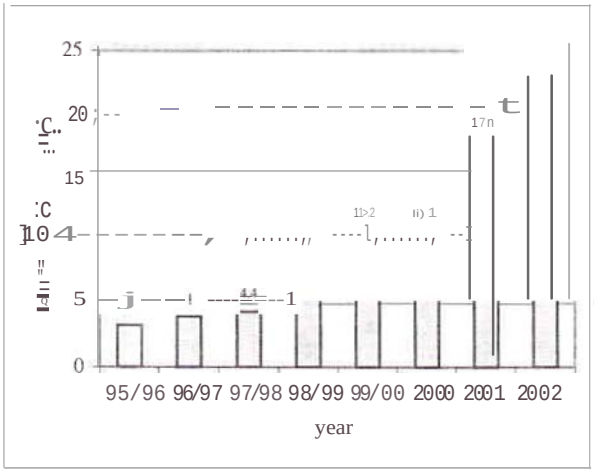

Figure 2. Taxfee target

A study by the National Institute of Health Research & Development (Ministry of Health) attempted to analyze the economic impact of smoking in Indonesia.

With the GDP per capita in 1995 about US$ 1,100, it is estimated that the macro economic loss for the country (government perspective) was in the amount of US$ 9,806,423,000 (almost 10 billion US dollars) or about 50% of the total annual budget of the Ministry of Health.

Economic losses due to tobacco at the individual/ family level can be divided into:

Direct Loss:	loss of income due to illness and or disability
	cost for medical treatment
Indirect Loss:	loss of income due to illness and or disability
	loss of income due to premature deaths
	loss of income of family members, due to taking care of the patients

Estimated economic loss at community level for each lung cancer patient was as follows:

- Average cost for medical treatment -- US$ 738.00.
- Average number of absenteeism per year due to hospitalization -- 23 days.
- Thus, the lost income due to illness for one patient is 23 X US$ 5.00 -- US$ 115.00.

Loss of income of family members (due taking care of the patients) is also equal to US$ 115.00.[19]

Health Impact

Reliable national mortality and morbidity data are scarce. However, whatever data are available all point to an increase in the major chronic diseases associated with smoking. Estimates suggest that tobacco-attributable mortality has risen from 1-3% of all deaths in 1980 to 3-4% in 1986. This suggests that about 57,000 deaths each year (primarily males) are already attributable to tobacco use, and this number can be expected to increase dramatically over the next few decades.·

A study of COPD and smoking in East Java province found that 1,546 men (60.3%) were smokers as compared to only 71 (1.8%) of the women. COPD prevalence was 13.1% overall. In men it was 15.6%, and in women the prevalence was 11.3%. However, among male smokers the prevalence was 15.8%. The relative risk of COPD in smokers was 1.02. Smoking and impaired PEFR (Peak Expiratory Flow Rate) were recorded in 12.4% of all respondents, and the results of the testing correlated well with the results from the questionnaire. Risk of impaired PEFR in smokers was

1.04. Asthma was found in 8% at all respondents, while its prevalence in men was 9.6%, in women 6.4%, and in male smokers it was 9.2%. The relative risk asthma in smokers was 0.88. All smokers smoked cigarettes; none of them professed to being a cigar smoker and only one was a pipe smoker. *Kretek* cigarettes were the most widel y smoked type of cigarette (61.5%).

Only 270 (17.5%) of the respondents had stopped smoking, but only 154 (57%) had done so for more than 1 year, and only 12.6% of clove cigarette smokers have tried quitting. Most of the smokers (76.6%) can be classified as light smokers, smoking less than 10 cigarettes / day. The nu mber of cigarettes / male smoker / day comes to 6.7 cigarettes. The prevalence of smokers goes up almost linearly with age, being 22.4% in the under 20 group to 75.6% in the over-50 group. Although paradoxically almost 40% of them started smoking in their late teens (38.5%) and more than 75% began to smoke before the age of 25 (77.2%).[20]

In a study on smoking and lung cancer in Jakarta, it was found that the relative risk to get Jung cancer for smokers 20 - 39 years of age was 6.76, and for those who had smoked for more than 40 years, the relative risk was 9.37. They fou nd a significant relationship between smoking and lung cancer among their male respondents , but not among the females. The dose-response impact was also discovered to be significantly among their male respondent.[21]

Another survey in 1993 assessed effects of passive smoking on pregnancy outcomes in Jakarta. The study concluded that odds ratio for a pregnant women exposed to passive smoking having a low birth-weight infants was 2.3.[22]

Prevalence Among Youth

A 1985 survey of primary schoolchildren in Jakarta found that 49% of the boys and 9% of the girls aged 10-14 were daily smokers. However, a study in Jakarta in 1990 reported that on!y 1% of the 11-14 year olds, 9% of the15 year olds, and 6% of the 16 year olds were daily smokers, although the figures for occasional smokers were 15%, 22%, and 44%, respectively. The latter study also revealed that 9% of the children started smoking when under 10 years old, 8% at the age of 11, 18% at age 12,23% at age 13, and 40% at age 14-16. The vast majority (95%) smoked *kreteks,* and 72% reported that their parents did not know that they smoked.[13]

The meta-analysis study done by "LM 3" found that in both current and former smokers, most initiated smoking between 10 and 29 years of age; there was no clear difference between males and females. However, the study did show that male teenagers start smoking earlier, while females tend to wait to try smoking after the age of 20, but all were at the you ng group. This was happened in the severity of smoking, which both groups together majority were still stay in the mild group, *i.e.* less than 200.[14]

This study also concluded that teenager smokers were found in the proportion ranged from 12.8% to 27,7% in males, and among females were 0.64% to 1%. Either in current or ex-smokers the age of smoking initiation were quite young, since the highest proportion was found in 10 to less than 30 years old. In males there were 81,34% of current smokers, and 77,80% of ex smokers, while in females looked likely to be lower, 49.05% of current smokers, and 48 .30% of ex smokers. Females tend to start to smoke at the older age.

Table 4. The Age of Smoking Initiation among Smokers

The age of smoking initiation (years)	*Current smokers*			*Ex smokers*		
	Males	Females	Total	Males	Females	Total
<10	1,15	1,93	1,26	1,08	0,85	1,03
10-19	44,20	22,86	41,14	43,53	22,88	39,35
20-29	37,14	26,23	35,58	34,27	25,42	32,47
30-39	6,57	16,37	7,98	6,90	13,56	8,25
40-49	1,85	9,63	2,97	1,08	11,86	3,27
50-59	0,71	6,38	1,52	1,29	6,78	2,41
60 and up	1,69	2,29	1,78	1,51	0,85	1,38

The Indonesian Household Health Survey 1995 found that the youngest age to start smoking was 5 years old. While a fair number of respondents started smoking between the ages of 10 and 14 years of age or between 21 and 25 years of age, most of the respondents started smoking between 15 and 19 years old. Only a very small proportion of the respondents started smoking between 26 - 30 years old.[6]

Another survey by the University of Indonesia showed that young adult men (when compared to young adult women) are far more likely to use substances that increase health risks. For example, 81.1% of young adult men have smoked cigarettes compared to only 8.0% of women. Similarly, 27.9% of men say they have drunk alcoholic beverages (compared to only 1.0% among women), and a history of recreational drugs was reported in 8.5% of the men and only 0.5% for women. In general, the consumption of alcohol and recreational drug use is higher among older respondents (aged 20-24 years of age), in urban areas, and among the more highly educated. In contrast, does not vary significantly with age, urban *vs.* rural setting, and their level of education. While men who have been married report higher levels of smoking and drinking, single males are slightly more likely to have used recreational drugs (8.6% of single men compared to 7.2% of married men).

When asked if smoking, drinking, and drug use are harmful activities, nearly all respondents said yes. Many young adults who are using these substances say they would like to stop. Among youth who are currently smoking, 83.2% would prefer to give up the habit. Young adult smokers who were interviewed are quite heavy consumers of cigarettes; men average 7.6 cigarettes and women 3.7 cigarettes each day.[23]

Another survey in Bali found that 15% of primary high school students (14-15 years old) are smokers. Data from 1219 primary and secondary school in Bandung (1998) showed that 32,33% had tried smoking, and that 12.3% are daily smokers. Another survey on street vendor children in 1998 found that 78.21 % of those children are smokers in Semarang and 58% of them in Bandung.[24]

Table S. Smoking attitude[23]

		Sex of Respondent		Total
		Male	Female	
Do you thinks smoking is harmfuP	Yes	97.8%	96.8%	97.3%
	No	2.2%	3.2%	2.7%
Total Respondents:	--	4219	3854	8073
Have you ever smoked?	Yes	81.9%	8.0%	46.6%
	No	18.1%	92.0%	53.4%
Total Respondents:	–	4221	3858	8079
Are you just "experimenting?"	Yes	37.8%	89.4%	42.1%
	No	62.2%	10.6%	57.9%
Total Respondents:	--	3456	308	3764
Do you smoke now?	Yes, regularly	78.2%	17.9%	77.3%
	Yes, sometimes	20.5%	44.4%	20.9%
	No	1.3%	37.7%	1.8%
Total Respondents:	--	2152	33	2185
Do you want to stop smoking?	Yes	83.1%	94.3%	83.2%
	No	16.9%	5.7%	16.8%
Total Respondents:	--	2122	20	2143
Have you tried to stop smoking ?	Yes	85.0%	87.9%	85.0%
	No	15.0%	12.1%	15.0%
Total Respondents	--	1763	19	1783

A survey was conducted by the Indonesian Smoking Control Foundation ("LM3") to determine the smoking pattern among children street vendors in Jakarta. This survey interviewed 250 street vendors in Jakarta, all below 14 years of age. 20.27% of these children sell cigarettes. 9.57% of these children started smoking before the age of 10 years, 25.36% started between 10 - 11 years old, 52.63% start smoking at 12 - 13 years old and 14.44% start smoking at 14 years of age. Of these street vendor children, 40.6% of them said they planned to continue smoking in the future. Their reasons to start smoking were "for fun," it "tastes good," "proud" to be smoker, and to feel "macho." 54.9% of the respondents consumed less than 19% of their income to buy cigarettes, 37.74% respondent consumed 10-20% of their income, 5.03% consumed 21-30%, J.89% consumed 31-40% and 1.26% respondent consumed more than 40% of their income to buy cigarettes. 77% of the group actually felt afraid that their parents would learn that their children smoked cigarettes. 86.98% of them knew that smoking was dangerous, but only 40.60% of them felt that had any current health problem related to their smoking habit. Of these, 71.08% experienced coughing and 12.05% described dyspnea. About 70.97% of respondents said that almost all street vendor children are active smokers.[25]

Another preliminary non random survey by the Indonesian Smoking Control Foundation ("LM 3") focused on students from one of the top-ranked high schools in Jakarta namely SMUN 8. The respondents were 95 students, of which only 7.4% were smokers and 6.3% were former smokers. On the other hand, it is estimated that the smoking prevalence in other high schools is much higher compared to this finding. A similar survey was also conducted on senior year medical and dentist students, with 71 respondents; 5.6% of them are current smokers, and another 5.6% are former smokers. In contrast to those data, a survey on students at a nursing academy found that only 1.1% of these students are active smokers, and 4.3% are former smokers. Lessons in school were felt to be most important source of information about the harmful effects of smoking by 41.5% of the high school students respondents, 48% medical and dentist students and 38.2% of nursing academy students. This survey will be continued and extended in the near future.[26]

A survey on the knowledge and attitudes about cigarette smoking among schoolchildren in central Jakarta concluded that:[27]

1. The basic knowledge concerning cigarette smoking of schoolchildren in the slum and non-slum areas of Central Jakarta is sufficient, but it needs to be broadened.
2. The attitude of schoolchildren in both the slum and non-slum areas of Central Jakarta is generally against cigarette smoking.
3. Advertisements, through television, radio and other public media (posters, banners, billboards) are the most persuasive sources of information used to promote cigarette smoking. Efforts should be made to eliminate these media from the schoolchildren's surroundings, especially in the neighbourhood of the schools.
4. Educational programs on television and direct participation by healthcare personnel are the most impressive sources of information concerning the hazards of smoking, but at the present time, these address only a very limited audience. Efforts should be made to increase the role of educational television programs and the use of health personnel as the source of information concerning the hazards of cigarette smoking.
5. The role of friends, families and school teachers as sources of information on the hazards of smoking is still very limited. Efforts should be made to increase the role played by these groups for them to become more effective in delivering the non-smoking message. Social activities at the schools such as non-smoking gatherings with parents, teachers, and students should be encouraged to promote the idea of non-smoking.
6. Radio and printed media are very under-utilised as sources of information concerning smoking hazards. Attractive programs for children need to be designed so that children can get accurate information about the harmful effects of cigarettes and smoking.

Summary

Smoking is an important problem in Indonesia. The smoking prevalence in male population is more then 60%. The relatively low prevalence rate in female (about 5%) may be due to traditional social restrictions, but it is safe to assume that the smoking prevalence in women will be increasing in the near future. Up to *fO%* of male teenagers smoke. The majority of smokers start smoking between 15 and 20 years of age, although some children start smoking as

young as 5 years old. *Kretek* clove cigarettes are the most popular type consumed by smokers in Indonesia. In fact, most of these *kretek* cigarettes have very high tar and nicotine content.

At least five factors complicate smoking-control programs in Indonesia.

One, it is estimated that about 12 million people are supported by tobacco-related industries. This includes tobacco and clove farmers, workers in tobacco factories, the distributors, shops and all the way down to the children street vendors; and one must add all of their families. Second, the cigarette industry is an important source of tax reven ues for Indonesia. The income that the government receives will surely be a important consideration while making any policies regarding to smoking-control programs.

Third, there is insufficient scientific research on smoking and health in the Indonesian population. Most doctors and health professionals use literature from abroad when designing health-education act1v1ties. Discussions with respectful medical specialists found out that there are quite few research being done in the field of smoking and heath. Fu rthermore, since common infections and tropical diseases are still very prevalent in Indonesia, they (probably understandably) receive more attention compared to research on tobacco and health.

Fou rth, smoking is socially accepted by most Indonesians. "Cigarette money" is a slang phrase commonly used for giving somebody a tip. During social gatherings, in urban as well as in rural areas, cigarettes are usually served. Asking somebody not to smoke is still sometimes considered impolite or perhaps even "foreign" behavior. Fifth, the political commitment from decision makers in the government is not yet strong enough.

To strengthen the smoking-control program in Indonesia, several things are needed. First, health education for the general public is very important. Many kinds of public media must ƀe used, since cigarette advertising is actively using all of them. In fact, the knowledge of the general population about smoking is still quite limited. In most medical and nursing school curricula, there are no special classes for smoking and health . Improving the knowledge about smoking, its impact on health, the economy and the many other aspects of the problem would be an important first step toward an effective smoking-control program in Indonesia.

Secondly, every segment in the society must be organized and utilized optimally. Government has a responsibility of coordination and regulation, and professional organization and NGOs can and already play important roles in any smoking-control program . In fact, they can play even more effective roles if allowed to work in a conducive environment.

Third, regulation and laws in the field of smoking should be enacted and firmly implemented. These regulations should at least include policies on advertisement, tar and nicotine content, defining smoke-free area, tobacco tax and fiscal issues, protection for vulnerable groups (such as women and children), *etc*. Many considerations must be keep in mind , but in the end, it is the health of the people of Indonesia who should receive the highest priority .

Fourth, especially for a tobacco and clove-producing country like Indonesia, a diversification of the tobacco industry should be started. There must be a way to find a smooth transition between the tobacco-dependent economy and one which is health y. Fifth , political commitment from government and parliament should be encouraged . They play a critical role in the decision-making process in the country. NGOs and other public organization should lobby hard to obtain this important political commitment.

Sixth, there are still much to be done in the field of research. Epidemiologic al research must be improved. Indonesia is a h uge country with more than 200 million inhabitants in hundreds ethnic groups spread over 17,000 islands. Special epidemiological techniqu es are needed to obtain reliable data that represent s the whole country. The health-related economic research is also needed . "Money talks," and having good information will accomplish a lot in discussions about economic policies.

International collaboration can, indeed, play an important role in smoking control. This kind of collaboration does not only cover researches, but it also serves as a kind of bench-marking of activities between countries in various aspects of their respective smoking-control programs. Success stories from one country could provide moti vation for neighboring countries. On the other hand , failure of one part of a country's program could serve as a good

example for another. Smoking is, after all, a global problem, and only a global solution can effectively deal with it.

Acknowledgment

The author would like to thanks Dr John W Aldis MD for his valuable advice in the presentation of this article.

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