Executive Summary

The sentinel prevalence study of Tobacco use in Myanmar was conducted in the year 2001 and repeated in 2006, with the objective to build a database on prevalence of tobacco use in the total population and among specific population groups for the purpose of advocacy for tobacco control and planning tobacco control interventions and evaluation. It was planned to conduct the survey every three years using the same study design and questionnaire at the two sentinel sites; Hinthada district from Delta Region and Pakkuku township from Dry Zone Region which had been randomly selected

At the two sentinel sites, 16 clusters from urban areas and 44 clusters from rural areas were selected for each district. A total of 120 clusters with 55 persons above 10 years of age in each cluster were surveyed (n=6414); using pre-tested structured questionnaires. Although it may not reflect the true national prevalence rate, it could be used as the best tool for monitoring and evaluation of the National Tobacco Control Programme of Myanmar, as the surveys were conducted periodically in the same manner.

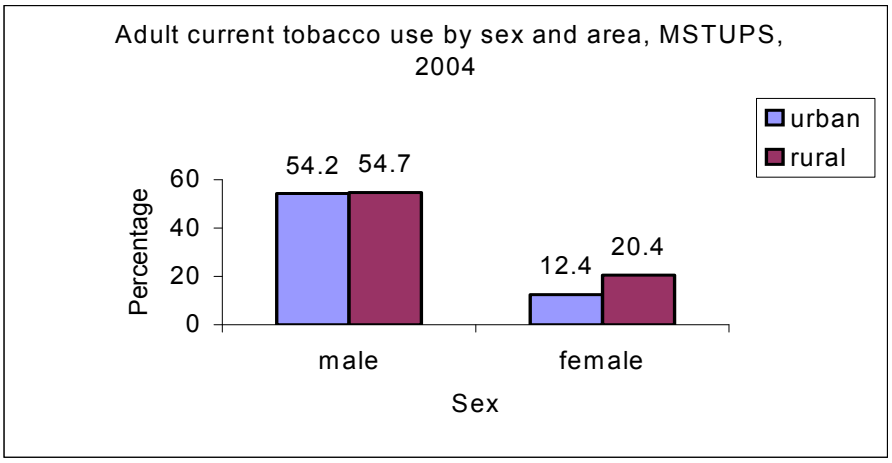
Data were analyzed to estimate prevalence rates of use of tobacco among sub-groups in the study population, adjusting for complex survey designs (stratification, cluster sampling and unequal sampling weights.)

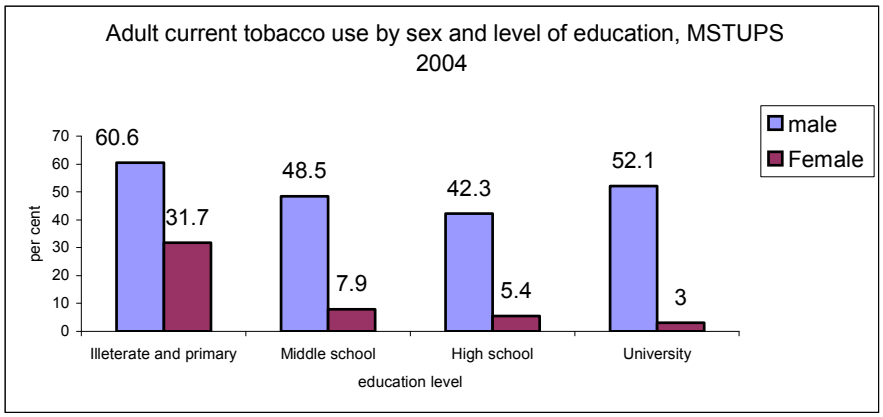
Type of User	Prevalence >15 years	Urban %	Rural %	Male %	Female %
Ever tobacco user	44.3 (± 0.99)	45.4 (± 0.99)	44.0 (±0.99)	62.9 (±0.96)	25.2 (±0.87)
Ever smoker	31.3 (±0.93)	33.9 (±0.95)	30.5 (±0.92)	42.6 (± 0.99)	19.8 (±0.80)
Ever smokeless	22.7 (±0.84)	23.5 (±0.85)	22.5 (±0.83)	36.1 (± 0.96)	8.9 (±0.57)

Type of User	Prevalence >15 years	Urban %	Rural %	Male %	Female %
Current tobacco user	37.7 (±0.97)	33.6 (±0.94)	39.3(±0.98)	57.2 (± 0.99)	20.6 (±0.77)
Current smoker	26.5 (±0.88)	24.7 (±0.86)	27.1 (±0.89)	38.1 (±0.97)	14.7 (±0.71)
Current smokeless	16.7 (± 0.75)	12.6 (±0.66)	18.1(±0.77)	28.8 (±0.91)	4.4 (±0.41)

Type of User	Prevalence >15 years	Urban %	Rural %	Male %	Female %
Adult daily tobacco user	35.4 (±0.96)	29.3 (±0.79)	37.5(±0.87)	53.9 (±0.94)	20.3 (±0.70)
Adult daily smoker	23.6 (±0. 86)	19.1 (±0.79)	25.1 (±0.87)	32.6 (±0.94)	14.4 (±0.7)
Adult daily smokeless tobacco user	16.3 (±74)	13.4 (±0. 70)	17.3(±0.76)	28.0 (±0.90)	4.4 (±0.41)

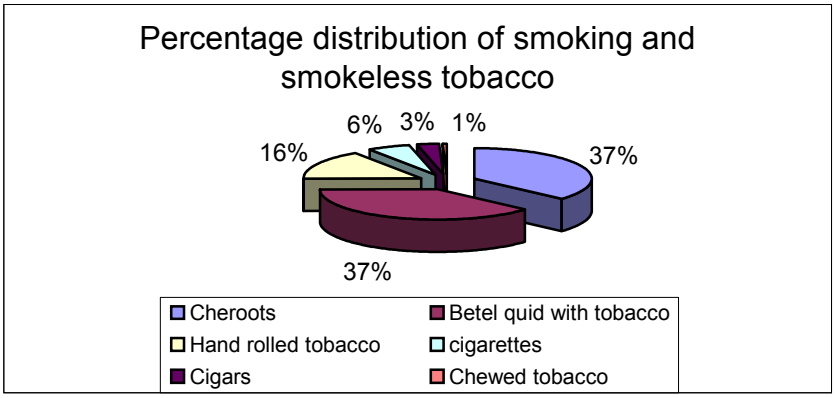
Higher prevalence rate of current tobacco use was reported among males, in rural areas, in middle age, low income group and low education status.





Different types of tobacco are used in Myanmar. The most common form of tobacco smoked are *cheroots* which are thin and long and usually wrapped with "thenatphet", a special form of leaf mainly used for making cheroots and grown in northern part of hilly region. Other smoking forms include hand-rolled cheroots, cigarettes, cigars and watery tobacco in some parts of Myanmar. Cheroots are also hand- rolled but they are mostly made by small cottage industries where hired women roll them with different mixtures of raw tobacco mixed with tangerine, lime and some ingredients. Hand-rolled cheroots mentioned in this report are the larger cheroots rolled at home usually wrapped in a corn(maize) tusk (pyaung phoo phet); they may also be rolled in smaller and longer forms wrapped by thenatphet (put chun). Smokeless forms of tobacco use include chewing of betel quid with raw tobacco and chewing of raw tobacco.

Percentage distribution of use of different types of tobacco among current users show that 37% smoked cheroots, 37% used betel quid with tobacco, 16% smoked hand-rolled tobacco, 6% smoked cigarettes, 3% smoked cigars and 1% chewed tobacco.



Among current tobacco users, two third reported smoking and one third reported chewing. Among chewers mostly chewed tobacco with betel (16.2%) and less than (0.5) % chewed raw tobacco. Among smokers, mostly (60%) smoked marketed cheroots and 26% smoked hand-rolled cheroots. Cigarette smoking was only reported by 6%. None reported smoking pipe.

Cheroot and hand-rolled cheroot smoking decreased with increased level of education whereas cigarette smoking increased with increasing level of education.

The median age of initiation for smoking was around 20 years (mean – 23 years) and median age of initiation for smokeless tobacco use was around 26 years (mean – 29 years).

Frequency of tobacco use was 4 times per day for tobacco chewing, 5 times per day for using betel quid with tobacco, and between 6 to 8 times per day for smoking of cigarettes, cheroots, hand-rolled cheroots and cigars.

It was found that of the current users more than 80% had made attempts to give up or cut down tobacco use. Out of those who had attempted to quit, 36.7% had succeeded to quit at least for 6 months. More than 90% of those who had succeeded had tried on self-determination with little support from family or friends and very few had asked for counseling from health personnel.

A strong association was detected between current paternal use of tobacco and all types of tobacco users. Significant associations were also detected with either parent currently using any form of tobacco with all forms of tobacco users.

Relationship between awareness of health hazards of smoking and smoking status was also highly significant for ever users as well as current users. Significant findings were also seen with awareness of hazards of passive smoking and tobacco use status of ever users as well as current users.

More than 85% of the respondents reporting knew that smoking and all forms of tobacco use is dangerous. But, only a few were able to answer about health effects other than respiratory disease. On specific health issues, 76.5% reported tobacco causes respiratory diseases, less than 20% reported that tobacco use is related to heart disease and surprisingly only 10.7% reported for tobacco causing cancer. Only 12.2% reported smoking causing stroke and only a few percent (2.9%) reported smoking can lead to impotency.

Cultural as well as religious views in Myanmar do not perceive tobacco use as immoral or sinful. It has been widely accepted socially for many years. About 55% of never users and 45% of ever users had positive perception towards tobacco use.

Positive perception of tobacco use was higher among lower income groups and among lower education groups. Prevalence rate was higher among those who had positive perception towards tobacco use. Association between perception of tobacco use and smoking is highly significant.

Introduction

According to the WHO estimate, today there are more than a billion smokers in the world (200 million females), the largest share of them in Asia. Recent studies point to growing numbers of smokers in developing countries, particularly in women. WHO has estimated that tobacco kills four million people globally, that is, one person every eight seconds. About 4.9 million die due to tobacco annually and by 2020, it has been estimated that tobacco use will be the leading cause of death and disability[1]. By 2030, the death toll is expected to increase to 10 million, with 7 million deaths occurring in the developing countries. Research studies show that tobacco is becoming a greater cause of death and disability than any other single disease. Tobacco poses a major challenge not only to health, but also to social and economic development and to environmental sustainability. Tobacco use is a major drain on the world's financial resources. Although it generates short term income, it has been estimated that tobacco costs the world over US $ 2000 billion per year. Over 200,000 hectares of woodland and forests are destroyed every year for the cultivation and curing of tobacco.

About 1.2 billion of the people in the world who are over 15 years of age smoke. In countries where the number of young smokers is not high already, it is rising.

Tobacco use is a major public health problem in all countries of the WHO South East Asia Region. Every year, over 500,000 die in the Region due to tobacco-related diseases. Tobacco use is increasing not only among men, but also among children and women and what is worse, among the poor.

Tobacco's prominent role as a major health hazard, and the likelihood of its health hazards increasing dramatically in the future, make it clear that the regular assessment of tobacco use and associated disease trends should be an integral part of a country's health information system.

Information on the status of tobacco use in the country is much needed. Policies and programmes to control tobacco use can be assisted by reliable and timely information about the pattern, extent and trends of tobacco use in the population, the health and economic consequences of tobacco use, and the socio-cultural factors which underlie it.

Prevalence of tobacco use in the population is one important measure of the magnitude of the tobacco problem. Additionally, with information about the prevalence of tobacco use in different subgroups of the population, the high-risk groups for tobacco use can be identified. This information is helpful for planning effective health education and intervention programmes for appropriate target groups.

Knowledge about prevalence levels strengthens the position of tobacco control advocates in lobbying for tobacco control measures. Repeated periodic prevalence surveys in the same population group are particularly useful in identifying trends in tobacco use behaviour. [1]

This study is therefore, very relevant to national and regional health priorities. It would help Myanmar develop a tool for monitoring and evaluation of national tobacco control programmes as well as help standardize regional tobacco use information. With information about the prevalence of tobacco use in different subgroups of population, the high-risk groups for tobacco use can be identified. This information would be very useful for planning effective health education/promotion programmers for appropriate target groups.

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1. *Guidelines for controlling and monitoring the tobacco epidemic,* Geneva, World Health Organization, 1998.

Chapter One: Study Design and Methodology

1.1 General Objective of the Study

To build a data base on prevalence of tobacco use in the total population and among specific population subgroups, for the purpose of advocacy for tobacco control and planning tobacco control interventions and evaluation.

1.2 Specific Objectives of the Study

To conduct a sentinel surveillance survey on tobacco use in the sentinel sites of Myanmar (where the study had been conducted in 2001 and planned to conduct every three years), using a pre-designed questionnaire (the same questionnaire that had been used in MSTUPS1:2001)in order to obtain the following:

- Information in overall tobacco use;
- Advocacy information
- Information for strengthening, planning and evaluation of tobacco control intervention.

1. 3 Methodology for Obtaining Tobacco Use Information

A pre-tested, structured questionnaire was used to interview persons above 10 years of age from the sample households of the clusters. Complete questionnaire is shown in Annex **3.**

1.3.1 Determination of Sample Size:

The recommended survey methodology by SEARO in 2001 was "Cluster Survey".

A cluster is a randomly selected population group of a size likely to include a specified number of population groups; which in this study was people with age 10 years and above. Sample size estimation and survey was based on cluster sampling methodology with 95% confidence interval.

Estimated prevalence rates of tobacco use vary from country to country. Limit of precision has therefore to be decided based on estimated prevalence rate. The estimated tobacco use prevalence rates in SEAR countries range from 40%-70%. In this study, the rate of 50% was used with 95% confidence interval, ±5% limit of precision and sex sub-group was applied, the estimated sample size for each survey was about 3,300 populations. This population size was then randomly allocated into 60 clusters, rather than 30 or 40. This was to make sure that population size of each cluster was not too large for surveyor to complete survey in each cluster in the same day.

Considering cost, time, human resource and programme sustainability factors, this study was not designed to conduct a nation wide scale survey. It was designed for conduction of several small surveys in different parts of the country. Arbitrary location of delta and dry zone regions was first selected, then in each region a province/district was selected for sixty cluster random sampling. Hinthada district (township) from Delta region and Pakkuku township from Dry Zone region were randomly selected. These two towns had been selected in 2001 and the survey in 2004 was conducted in the same two townships as they had been designated as sentinel sites for monitoring prevalence of tobacco use.

As urban to rural ratio in both districts is approximately 30:70, 16 clusters from urban areas and 44 clusters from rural areas were selected for each district, a total of 120 clusters with 55 persons above 10 years of age in each cluster were surveyed. (n= 6600)

Cluster sampling was conducted in a 2- stage process involving:

- First, selecting communities in which clusters were located; and
- Second, within these communities, identifying groups of households where interviews were to be conducted. The “cluster” was the population living in these households.

Probability Proportionate to Size

To the extent possible, communities where clusters were located had been selected according to a principle called “probability proportionate to size.” This means that communities with populations of equal size had an equal chance of being selected to contain a cluster; communities with larger populations had a proportionately greater chance of having a cluster than smaller communities.

1.3.2 Sampling Process

1. A list of all communities and their populations in the district selected was prepared. The list included all communities; all the wards of urban areas and all villages in the rural areas and their populations.

2. The cumulative population was calculated and listed with the addition of each community.

3. The sampling interval was determined using the following formula :

   $$\frac{\text{Cumulative total population}}{\text{Number of clusters (60)}} = \text{Sampling interval}$$

4. A random number was selected, which was equal to, or less than the sampling interval.(Between 1 and 60).

5. To identify the community in which Cluster Number 1 was located, the first community on the list was looked for, in which the cumulative population equaled or exceeded the random number selected in step 4.

6. Then, the community in which the second cluster was located was identified as follows:

   Random number + Sampling interval = Location of second cluster

7. Each subsequent community in which a cluster was located was identified using the following formula. The sampling process was completed when the communities in which the desired number of clusters would be located had been identified.

Number which identified the location of the previous cluster + Sampling interval = Next cluster location

1.3.3 Conducting Survey at Household Level:

The first household was randomly selected for starting the survey. Once first household was selected, the survey was proceeded to the next nearest household, in the same direction, till the number of required population in the cluster were interviewed.

Process For Selecting Households In Clusters

Required cluster size (total population) ----------60----------
Required number of target population ----------3300----------

Findings	And	Process for Selecting Household
The community size was larger than the required cluster size	There was population data on subsections of the community	▪ Administratively, the community was already divided into subsections (wards, villages, village tracts) which were slightly larger than the required cluster size. ▪ Each subsection was numbered and one was selected randomly. ▪ All households in that subsection was selected. ▪ If enough target population was not obtained, the nearest subsection was selected and as many more households as needed was surveyed , beginning with the closest.

One surveyor was assigned to complete one cluster in each day. Supervisors closely monitored surveyors, particularly, at the beginning of the survey to make sure that surveyors used the right methodology in selecting household, properly using the questions and filling questionnaire form. Ratio of one supervisor to two surveyors was used. About 6 days was required to complete 60 clusters (10 clusters per day). Each day supervisors consolidated data of the surveyed clusters.

1.3.4 Analysis of Survey Data

Data obtained from each cluster were entered into summary sheets, and then transferred into a computerized spreadsheet table. With this table, each rate and limits of precision was automatically calculated. As more than one survey was conducted within the country, the median value of the two surveys was applied as a national figure. Although it may not reflect the true national prevalence rate, it shall be served as the best tool for monitoring and evaluation of tobacco control programmer, as the surveys are conducted periodically, in the same manner. Epi Info and SPSS soft wares were used for analysis of the data.

1.4 Training Needs and Opportunities

Before the study started, training on survey techniques was conducted for all the survey's team members at Department of Health, Yangon, for 3 days, including one-day field practice at Daw Pone. The 2-day class sessions were given for explanation of terms used, interpretation of questionnaires, technique of asking questions, sampling of first household, filing and summarizing the questionnaires form. Training methodologies included lecture, demonstration and practices.

Each survey team was comprised of One Team Coordinator, 3 Supervisors and 6 surveyors.

This study provided skills to participants on how to conduct household survey in a large population, particularly, the application of cluster sampling survey.

1.6 Utilization of Results

1. Myanmar will use this information for planning, monitoring and evaluation of National Tobacco Control Programme and would also help standardize regional tobacco use information.

2. With available information about the prevalence of tobacco use in different subgroups of population, the high-risk groups for tobacco use can be identified. This information would be very useful for planning effective health education/promotion programmers for appropriate target groups.

3. Results can also be used as an effective tool for advocacy for policy measures towards demand reduction interventions.

Chapter Two: Demography of the Sample Population

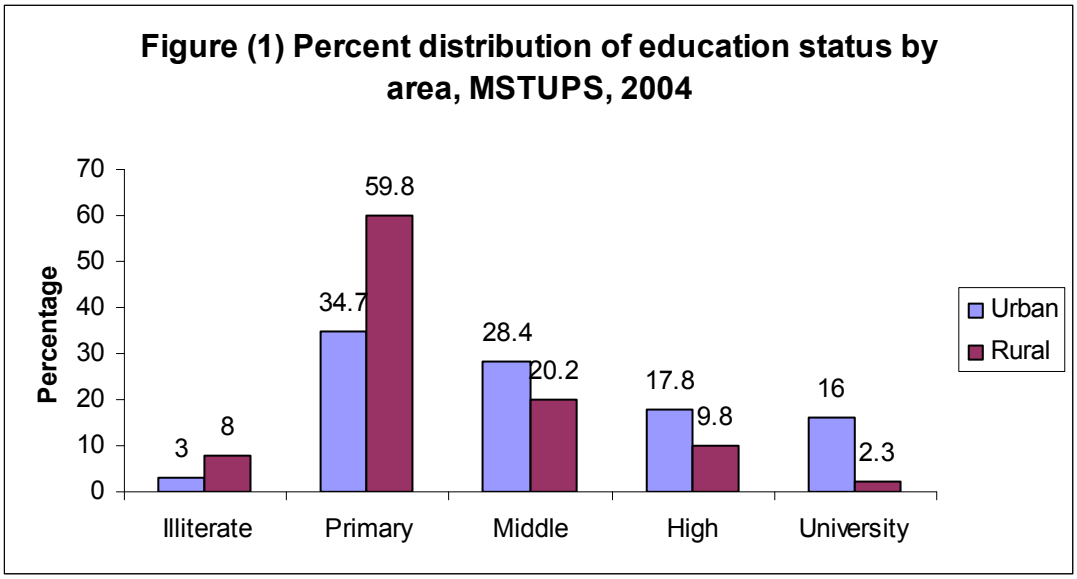
3.1 Demographic and socio-economic characteristics

The two districts (townships) selected for the survey were Hinthada and Pakkuku. Hinthada is situated in delta region, in lower Myanmar and Pakkuku is situated in dry region, in the central plains of Myanmar. In both districts, approximately 25% of the community is urban and 75% rural. The majority of the working group is involved in agriculture sector.

Demographic and socio-economic data are shown in Tables 1 to 4 in Annex 1.

About 52% of the population was married, 41% were single, 7% were widowed, and only 1% was divorced.

The educational status of the community shows a marked difference between urban and rural communities. Over 6. 7% of the rural community had only primary and below level education, only 12% passed high school, whereas in the urban areas 38% had primary and below primary school level, 28% passed middle school and 18% finished high school. (Figure 1)



The income distribution of the sampled population shows that more than 80% of households earn less than kyats 40,000 per month. Myanmar people were usually reluctant to answer questions on income of the households and the answers were likely to be underrated. There were 127 persons above 15 years of age that did not answer about their income.

The **mean** household income for urban areas was kyats 36,370 and for rural areas was 28,103; mean income for total population was kyats 30203.

In both districts, over 98% of the sampled population was Burmese Buddhists. There were a few persons belonging to other ethnic groups and other religion. This represents most of the communities in Myanmar, although in some Regions ethnic groups other than Burmese are the majority and in hilly tribes, Christian is the major religion.

Chapter Three: Results

3.1 Definitions of Prevalence of Tobacco Use

Global monitoring of the tobacco epidemic and comparisons between countries requires a standardization of terms and concepts that must be defined concisely. Key definitions are given below. [1]

Any population can be divided into two categories, smokers and non-smokers.

A. A *smoker* is someone who, at the time of the survey, smokes any tobacco product either daily or occasionally.

A1. A *daily smoker* is someone who smokes any product at least once a day.

A2. An *occasional smoker* is someone who smokes, but not every day.

Occasional smokers include:

A2 1) *Reducers* – people who used to smoke daily but now do not smoke every day.

A2 11) *Continuing occasional*- people who have never smoked daily, but who have smoked 100 or more cigarettes (or the equivalent amount of tobacco) and now smoke occasionally.

A3. 111) *Experimenters*- peoples who have smoked less than 100 cigarettes (or the equivalent amount of tobacco) and now smoke occasionally.

B. A *non-smoker* is someone who, at the time of the survey, does not smoke at all.

Non-smokers can be divided into three categories:

B1. *Ex-smokers* are people who were formally daily smokers but currently do not smoke at all.

B2. *Never-smokers* are those who either have never smoked at all or have never been daily smokers and have smoked less than 100 cigarettes (or the equivalent amount of tobacco) in their lifetime.

B3. *Ex-occasional smokers* are those who were formerly occasional, but never daily, smokers who smoked 100 or more cigarettes (or their equivalent of tobacco) in their lifetime.

These definitions can be used to classify the population according to their lifetime smoking status. In particular:

C *Ever smokers* are defined as those who ever smoked at least 100 cigarettes (or the equivalent amount of tobacco) in their lifetime.

A specific subcategory of interest is those who have smoked, or now smoke, every day.

C1 *Ever daily smokers* are defined as persons who are currently daily smokers, reducers or ex-smokers.

Some common categories of smoking status for individuals can then be readily constructed, as follows:

Smokers = daily smokers (A1) + occasional smokers (A2 (1-111))

Ever smokers = daily smokers (A1) + occasional smokers (A2 (1-111)) + ex-smokers (B1) + ex-occasional smokers (B3)

Ever daily smokers = daily smokers (A1) + reducers (A2 1) + ex-smokers (1)

Ex-smokers = ex-daily smokers (B1)

3.2 Calculation of Prevalence Rates

Prevalence of smoking is defined as the "proportion (usually expressed as percentage) of the population who are smokers (both daily and occasional) at a point in time". [1]

In other words:

$$\text{Prevalence of Smokers (in \%)} = \frac{\text{Number of smokers in the population being surveyed}}{\text{Total size of the survey population}} \times 100$$

(Smokers and nonsmokers)

Before analyzing the data, the design effect for stratified cluster sampling was adjusted. It was also adjusted for unequal sampling weight. The percentages may not tally with simple mathematical calculations.

In this report prevalence rates were calculated for different categories of tobacco cases and different types of tobacco used for above 15 years of age to be able to compare with other studies conducted in Myanmar and internationally.

Categories of tobacco users had been categorized as follows: -

(1) Ever users of tobacco

(2) Ever smokers of tobacco

(3) Ever smokeless tobacco users

(4) Current Users of Tobacco

(5) Current Smokers of Tobacco

5(a) Current Cigarette Smokers

5 (b) Current Cheroot Smokers

5(c) current Hand-rolled Tobacco Smokers

5(d) Current Pipe Smokers

5(e) Current Cigar Smokers

(6) Current Smokeless Tobacco Users

6(a) Current Users of Betel Quid with Tobacco

6(b) Current Tobacco Chewers

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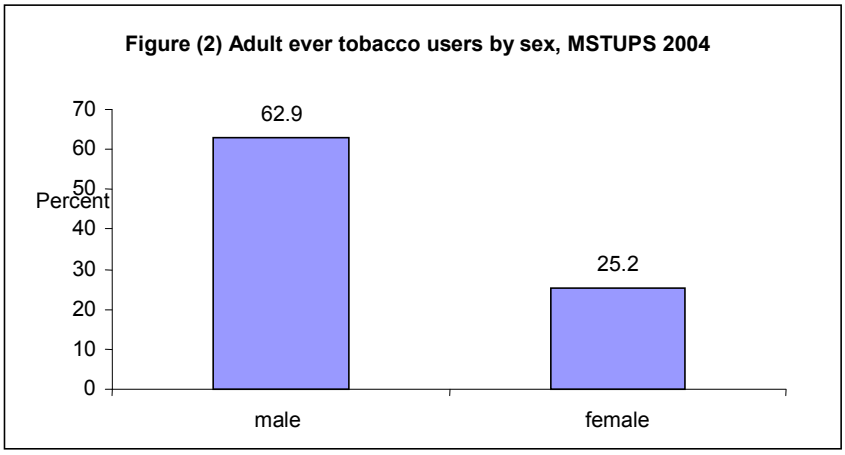
1. *Guidelines for controlling and monitoring the tobacco epidemic,* Geneva, World Health Organization, 1998.

3.3 Results

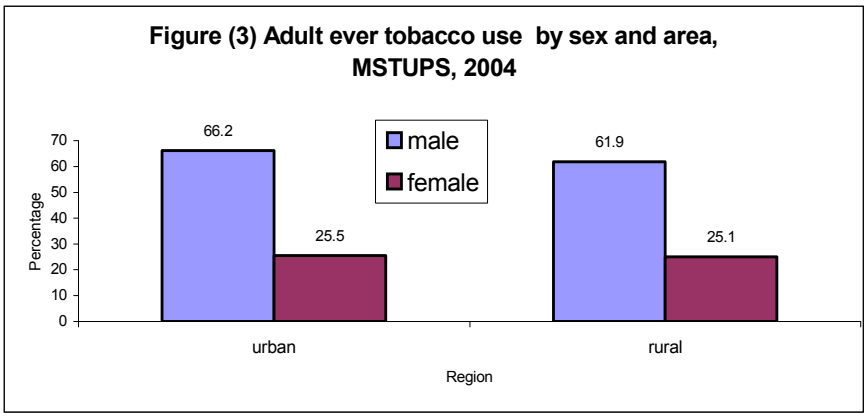
3.3.1 Adult ever tobacco users

Prevalence rates of ever tobacco users were shown in Annex (2), adult prevalence Tables 1 to 6. Among the respondents 44.3% (62.9% males and 25.2% females) reported for ever tobacco use. (Figure 2)



Both urban and rural respondents were almost the same for ever use of tobacco (45.4% and 44.0% respectively). Men than women reported for ever tobacco use both in urban and rural area. (Figure 3)

Women have similar prevalence in both urban and rural; men from urban than rural area reported for ever tobacco use.



To analyze the association between income and tobacco use respondents' family income was grouped into five groups i.e. lowest income group (income group 1) from highest group (group 5) analyzed the association between the two variables. Prevalence rates of ever users declined with higher level of income (Figure 4) and higher level of education (Figure 5). Association between income group and ever tobacco user

was significant at p = 0.04; association between education group and ever tobacco use was highly significant at p=0.00.

Figure (4) Adult ever tobacco users by income group and sex, MSTUPS, 2004

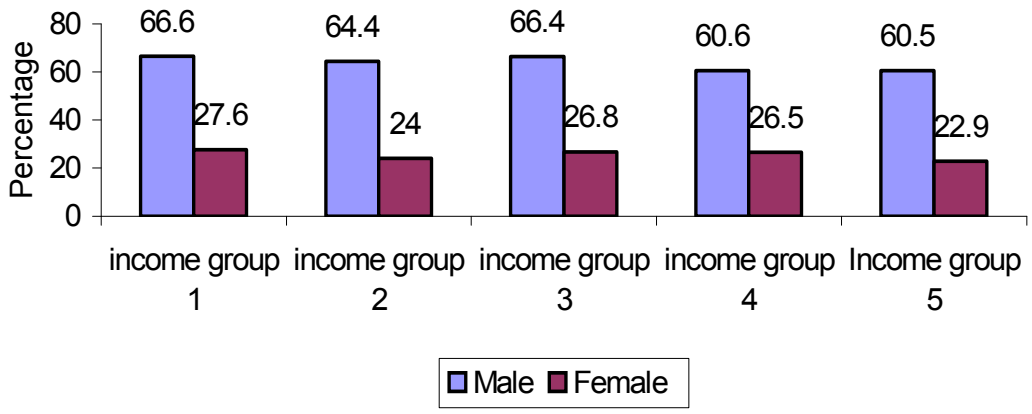
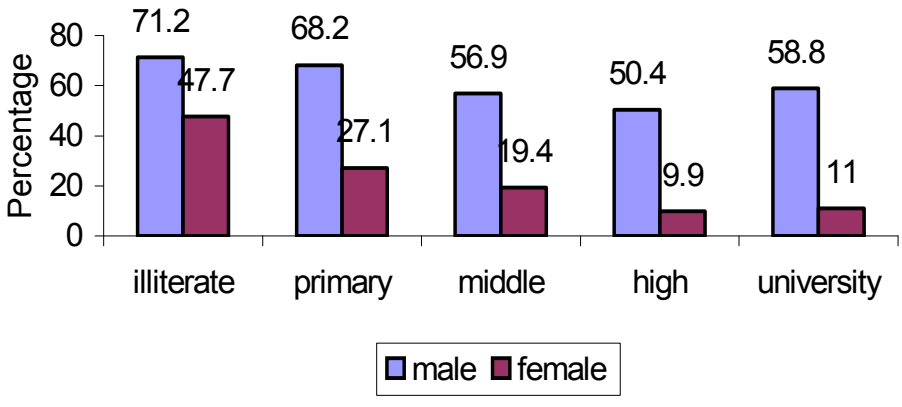
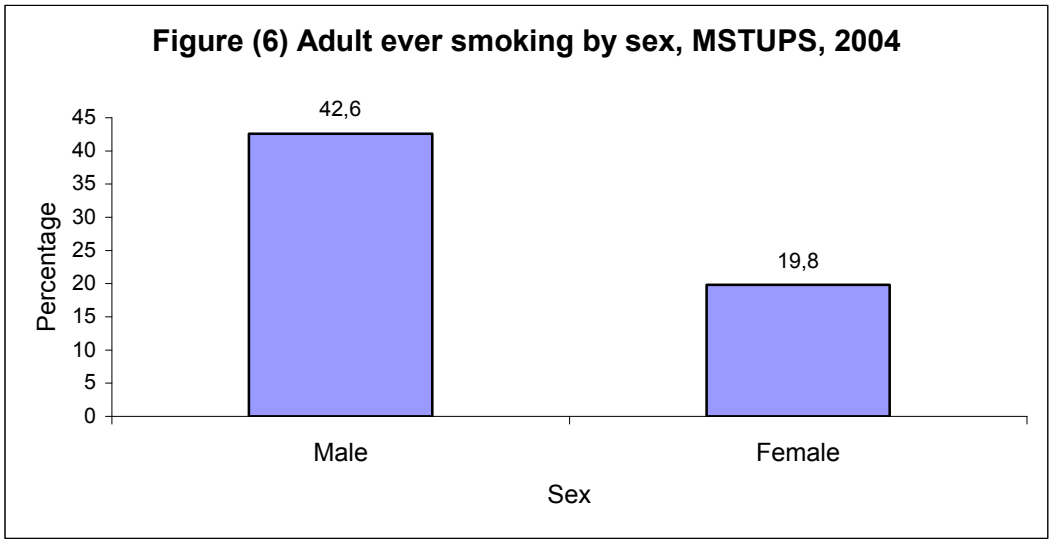


Figure (5) Adult ever tobacco users by education and sex, MSTUPS, 2004

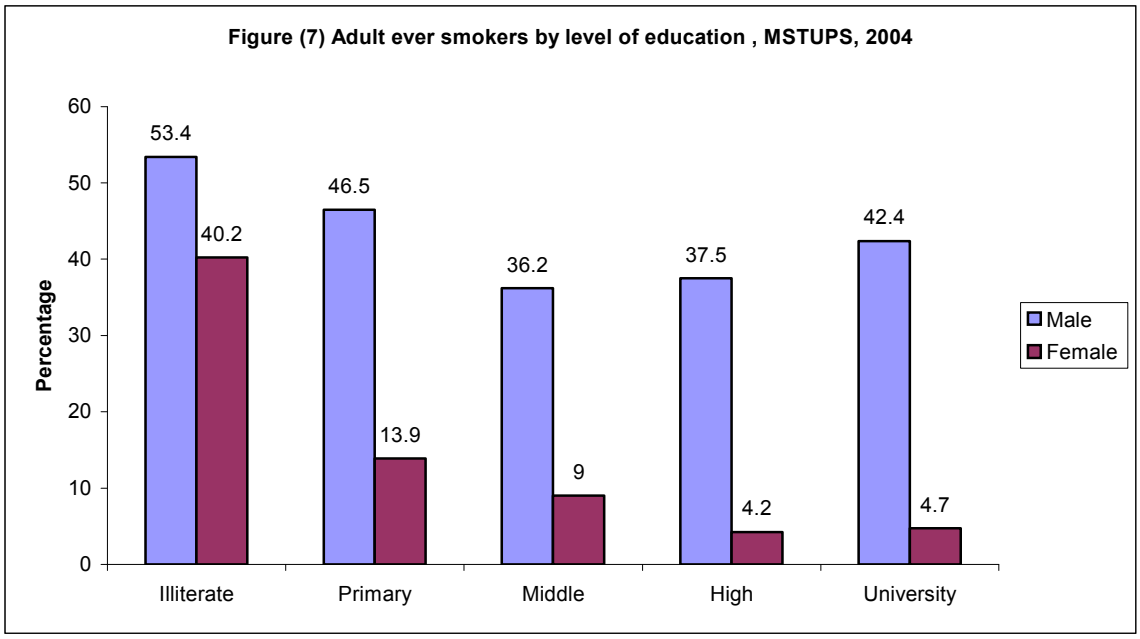


3.3.2 Adult ever smokers

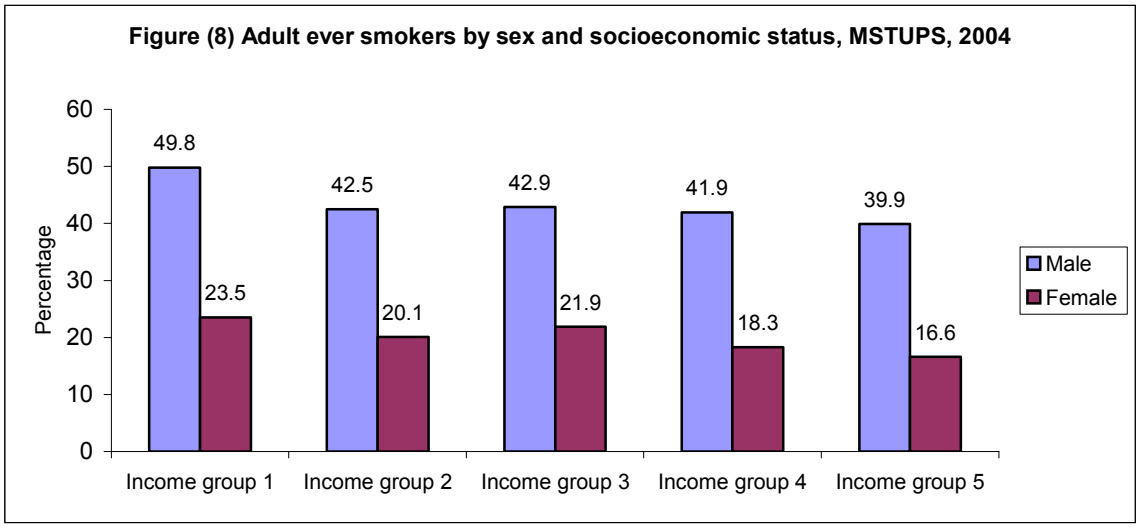
Among the respondents 31.3%% (42.6% males and 19.8% females) reported for ever smokers (Figure 6). Prevalence rates of ever smokers were tabulated in Tables 2 in Annex (2). Difference between sexes and ever smokers was highly significant at p=0.00.



Higher level of prevalence was reported among lower level of education in female but among male higher prevalence of smoking was found in both low education and highest education level groups i.e. illiterate and university education level groups (Figure 7).

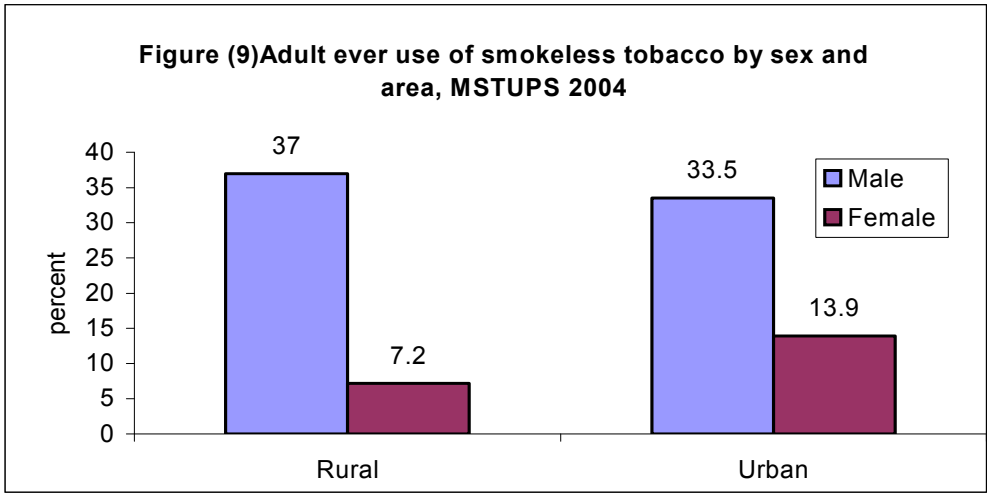


When respondents' family income and prevalence of smoking was analyzed, apart from slight higher prevalence of ever smokers among lowest income group and slightly lower prevalence among highest income group, other income groups have almost the same prevalence of ever smoking and the findings were similar for both sexes. (Figure 8)

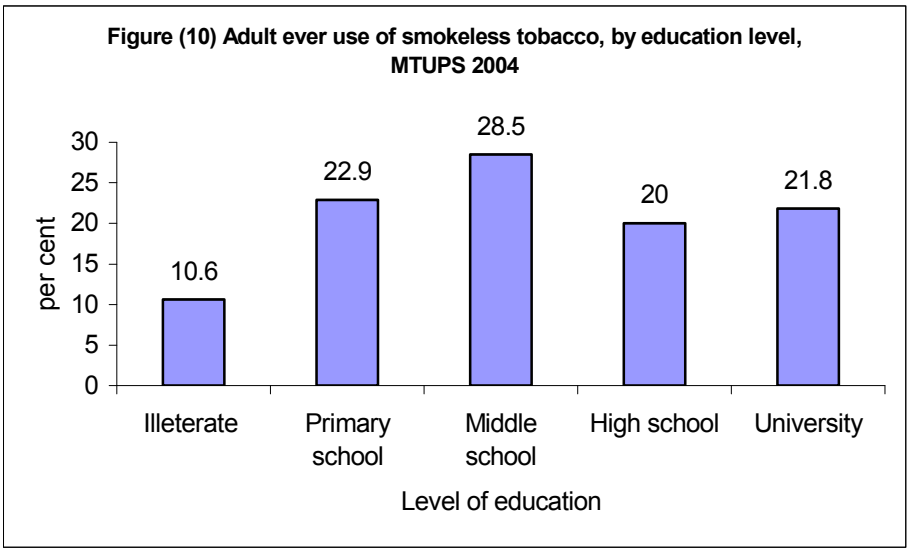


3.3.3 Adult ever smokeless tobacco users

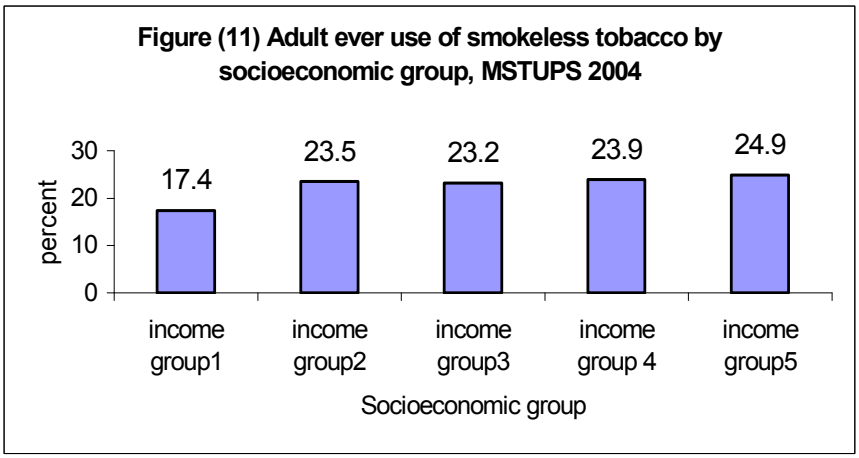
Among the respondents 22.7% (36.1% males and 8.9% females respectively) reported of ever smokeless tobacco use. Among male higher prevalence was reported in rural areas but among females lower rates were reported in rural than urban. Ever smokeless tobacco use was reported nearly four times more among men as compared to women both in rural and nearly two and a half times in urban areas. (Figure 9). Difference between sexes and ever smokeless tobacco use was highly significant at p=0.00.



There was no significant difference of smokeless tobacco use among education groups. (Figure 10)



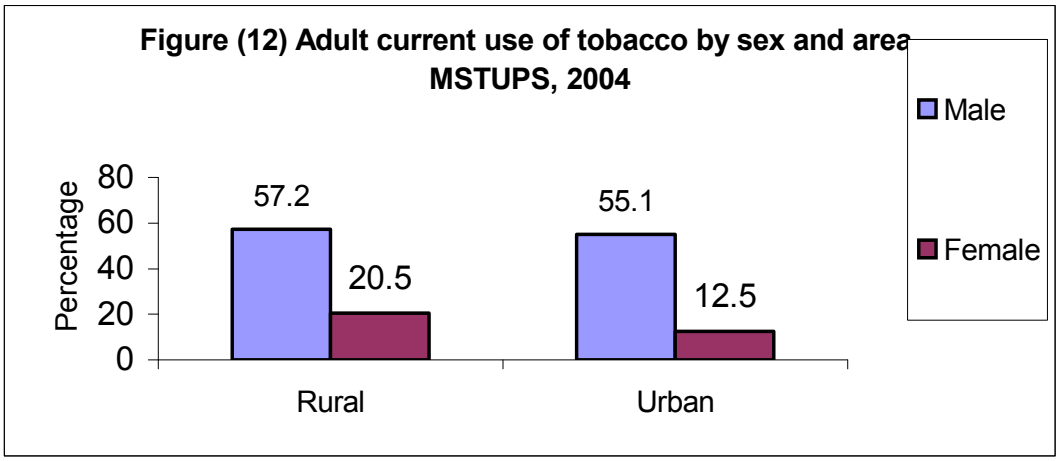
There was no significant difference of smokeless tobacco use among income groups. (Figure 11)



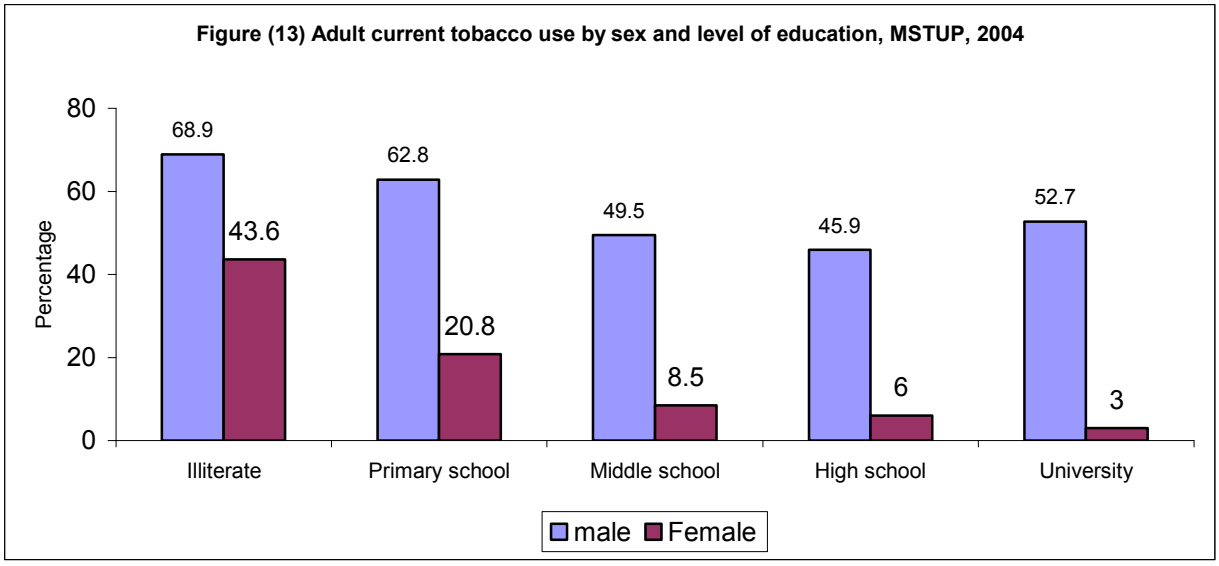
Prevalence rates of ever smokeless tobacco users were tabulated in Table 3 in Annex 2.

3.3.4 Adult current tobacco users

Current tobacco use was reported as 37.7% of adult population. Current any tobacco use among male respondents in both urban and rural areas was reported almost similar (55.1% and 57.2%) respectively (Figure 12). Rural adult females than urban adult females reported 1.5 times more for any current tobacco use. (Male than female reported for current use of any tobacco (56.7 and 18.4 respectively) both in rural and urban area. Difference of current tobacco use among sexes was highly significant at p=0.00.

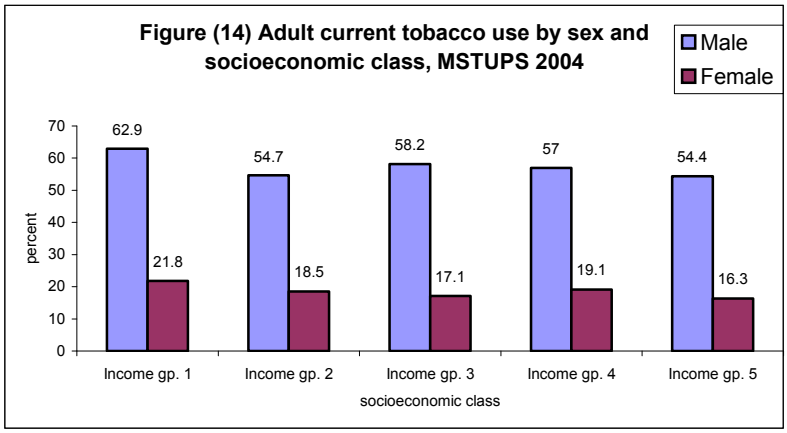


Among both sexes, lower prevalence rates of current tobacco use was reported with higher level of education but among males who have university level education current tobacco use rate rises again. (Figure 13).



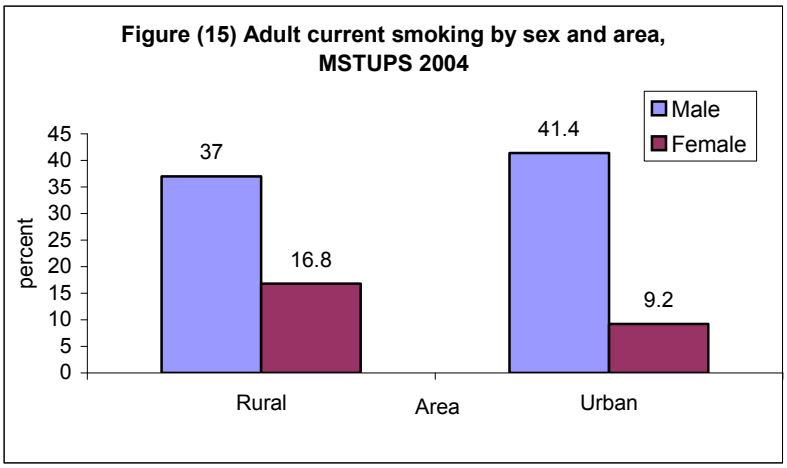
Current tobacco use was reported highest among lowest economic group and among other economic groups the rates were similar in both sexes. (Figure 14). Association between current tobacco use and education was highly significant at p=0.00.

Prevalence rates of current tobacco use were shown in tabulated forms in Table 4 in Annex 2.



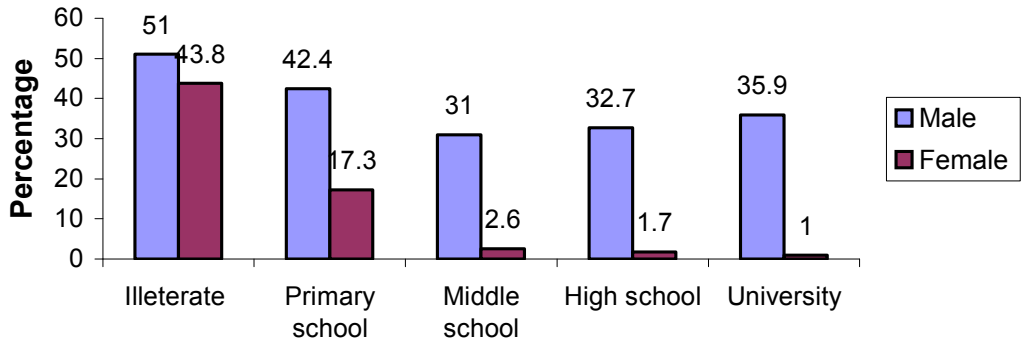
3.3.5 Adult current smokers

Current smoking was reported as 26.5% (38.1% males and 14.7% females respectively). Among respondents, males than females reported for current smoking in both urban and rural areas. Prevalence of current smoking was higher among urban male and rural females. Rural females reported about 2 times higher than urban females. (Figure 15)



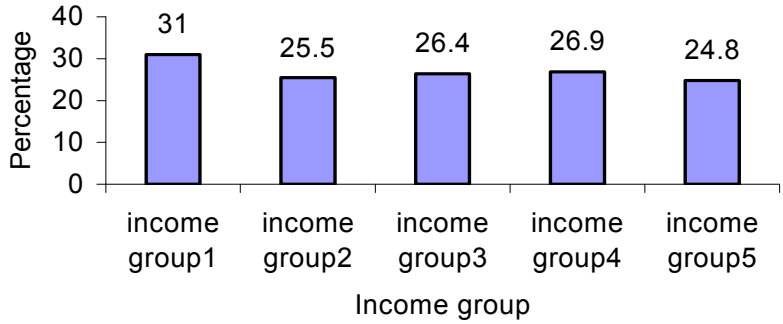
Prevalence of current smokers was reported highest among the illiterates and primary school level and declined with higher level of education for female respondents although it was not significant for male respondents. (Figure 16).

Figure (16) Adult current smokers by sex and level of education



Current smoking was reported highest among the lowest income group and lowest among the highest income class. (Figure 17). Association between current smoking and income group was significant at p=0.005.

Figure (17) Adult current smokers by socioeconomic status, MSTUPS, 2004

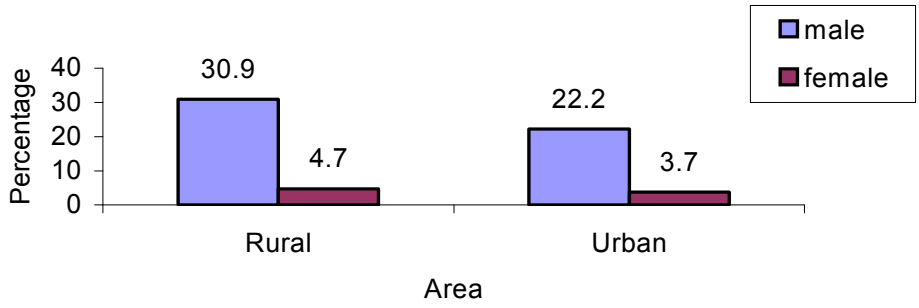


Prevalence rates of current smokers were shown in tabulated form in Table 5,6,7,8 and 9 in Annex 2.

3.3.6 Adult current smokeless tobacco users

Among the respondents current smokeless tobacco use was reported as 16.7% (28.8% of males and 4.4% of females respectively). Current smokeless tobacco use was reported more than six times more among men as compared to women both in rural and urban areas (Figure 18). Difference between sexes was highly significant at p=0.00.

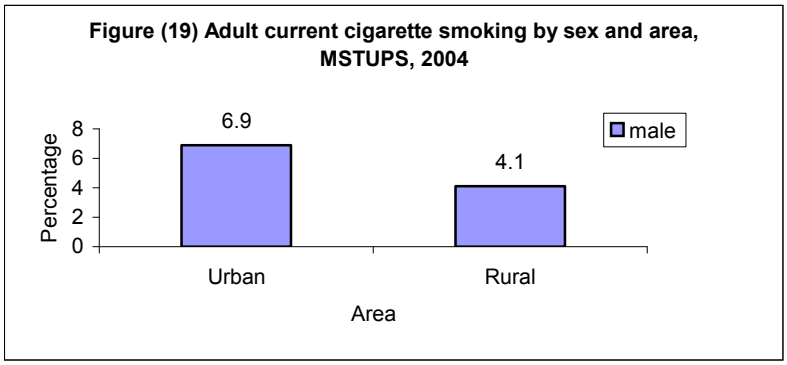
Figure (18) Adult current smokeless tobacco users by sex and area, MSTUPS, 2004



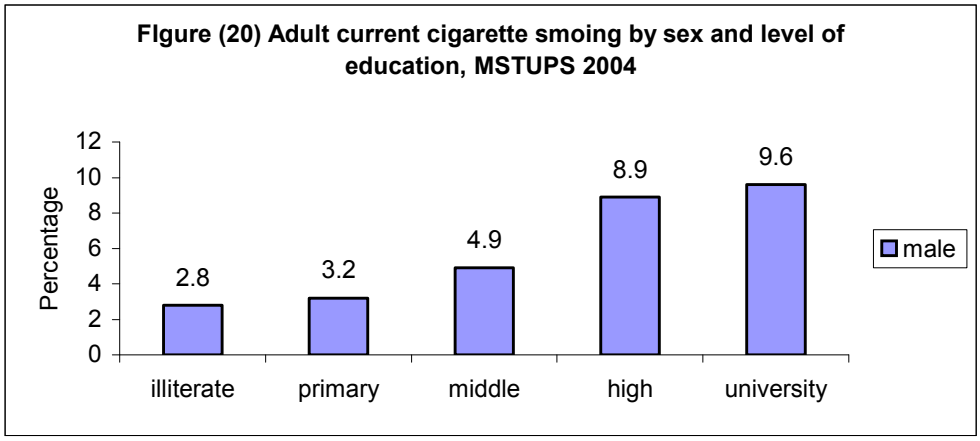
There were no significant difference of smokeless tobacco use among different level of income and education groups. (Annex 2, Table 6).

3.3.7 Adult current cigarette smoking

Current cigarette smoking was reported as 2.4% and there were only male current cigarette smokers i.e. 4.8%. Urban male cigarette smoking was higher than rural was reported significantly (rural 4.1% versus urban 6.9%). (Figure 19).



Paradoxical to other findings, current cigarette smoking was reported high among the higher education groups (Figure 20 and Annex 2 Table 7). Difference between education groups was highly significant at p=0.00.



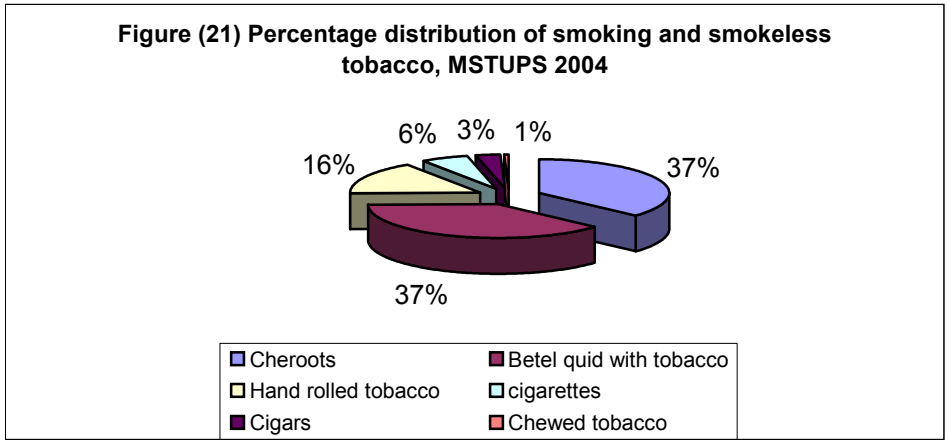
3.3.8 Adult current cheroot smoking

Cheroots are widely smoked in Myanmar. They are mostly produced by small cottage industries although some popular brands are produced by bigger industries. All of them are rolled by hand. Mixture of raw tobacco, roots of Myanmar tobacco plants, small amount of banana and tangerine are wrapped by a particular leaf called " thenatphet". These leaves are mostly grown in the northern hilly regions and are mainly used for making cheroots. Cheroots are rolled into thin and long shapes.

Hand-rolled cheroots are similar to cheroots but instead of thenatphet, corn (maize) tusk is used and usually they are bigger. These forms are called as "pyaung phoo phet". Hand-rolled cheroots may also be wrapped by thenatphet but in smaller and thinner forms called as " putchun". In this report all these forms are grouped as hand-rolled cheroots. These are all rolled at home to be smoked by the rollers themselves.

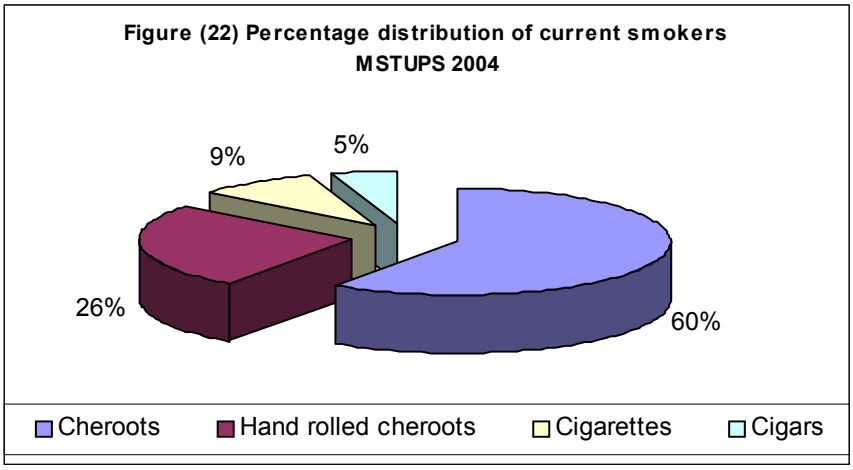
Among the current tobacco users, 37% smoked cheroots, 37% used betel quid with tobacco, 16% smoked hand-rolled tobacco, 6% smoked cigarettes, 3% smoked cigars and 1% chewed tobacco.

Figure (21) Percentage distribution of smoking and smokeless tobacco, MSTUPS 2004

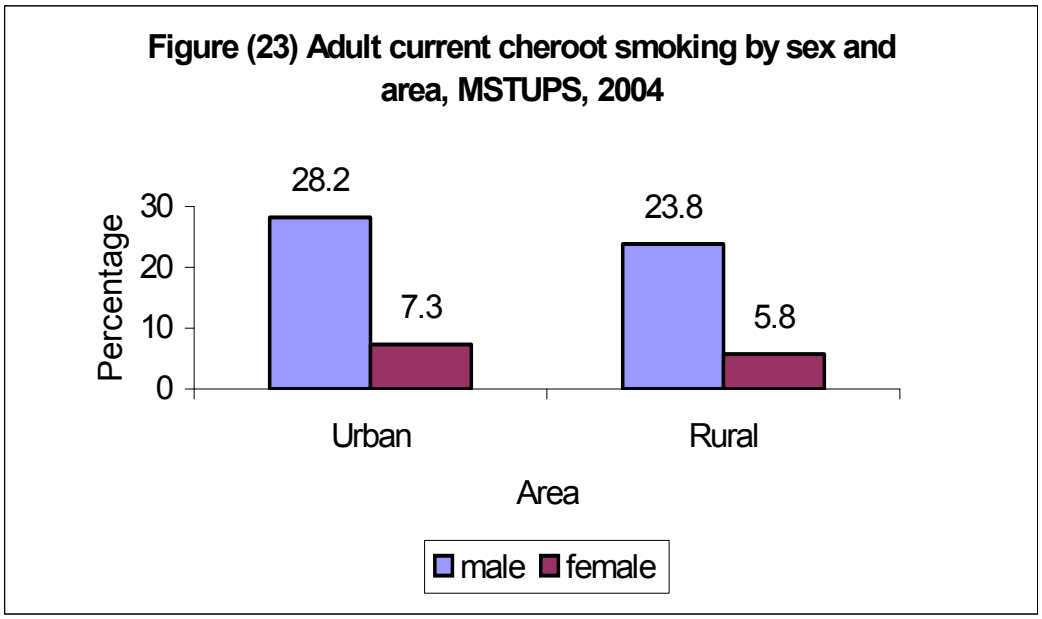


As for current smokers percent distribution of current smoking is reported as 60% cheroots, 26% hand-rolled cheroots, 9% cigarettes and 5% cigars. Cheroots are the most common type of tobacco smoked in the sentinel townships, followed by hand-rolled cheroots and cigarettes.

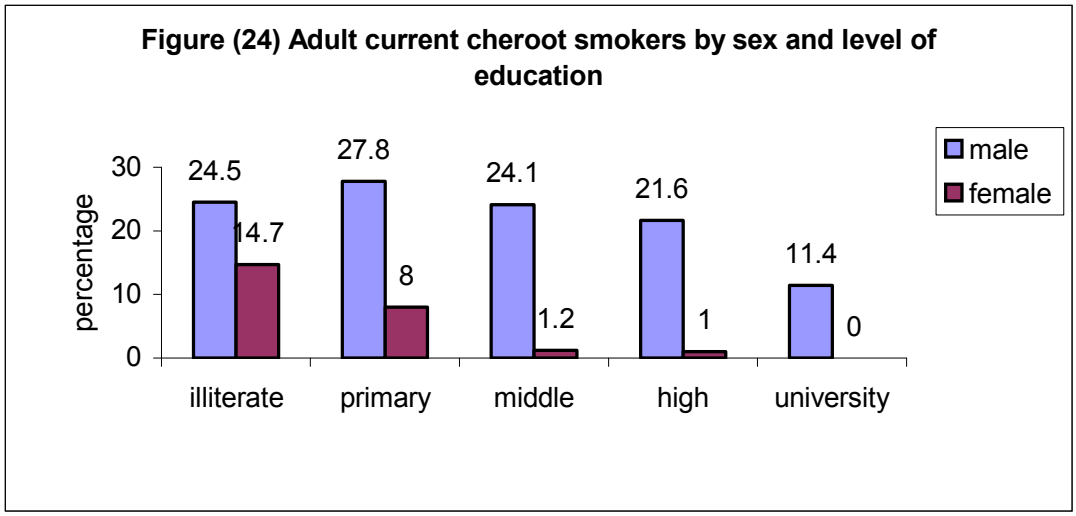
Figure (22) Percentage distribution of current smokers MSTUPS 2004



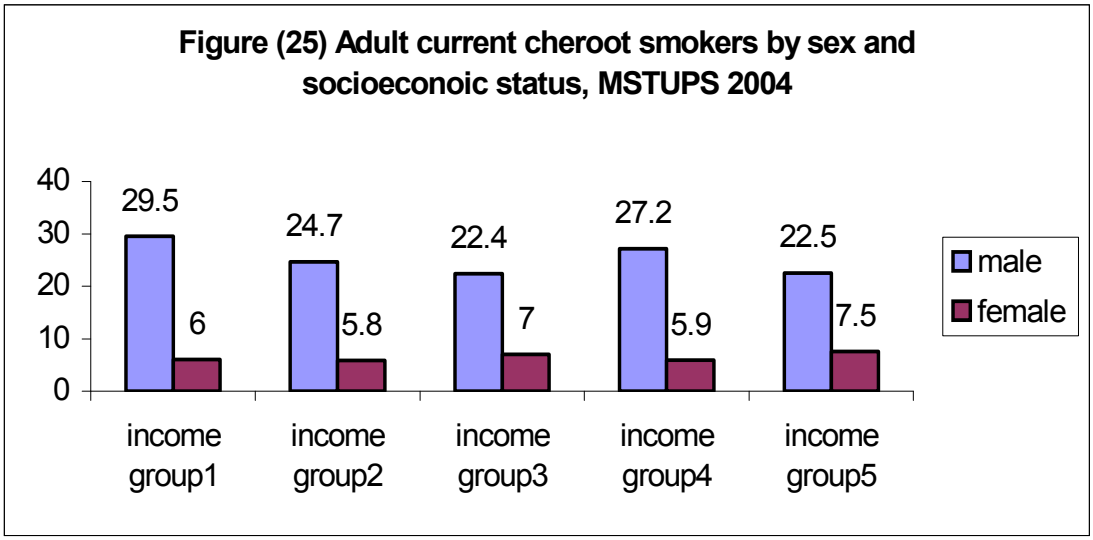
Among the respondents, current cheroot smoking was reported as 15.6% (24.9% males and 6.3% females respectively). Current cheroot smoking prevalence among men was reported four times than women and it was reported similar in rural and urban areas.



Current cheroot smoking declined with higher level of education which was more significant among women. (Figure 24 and Table 8, Annex 2).



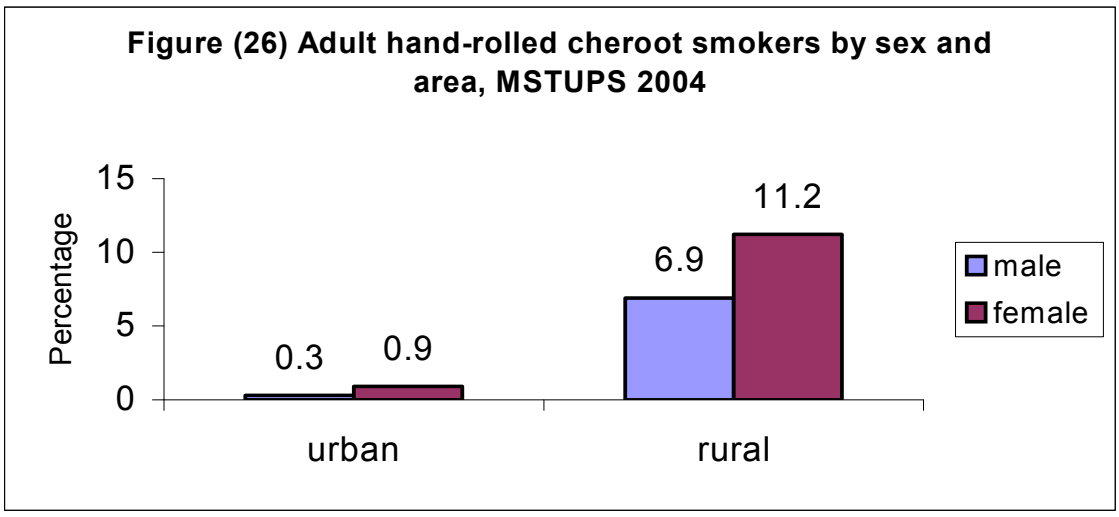
Among both sexes there was no significant difference between socioeconomic groups. (Annex 2, Table 8)



3.3.9 Current hand-rolled cheroot smoking

Current hand-rolled cheroot smoking was reported as 6.8% (5.3% males and 8.4% females respectively).It was reported more among women as compared to men.(Annex 2, Table 9).

For both sexes it was reported much more higher in rural than urban areas more than twenty times among men and ten times among women. (Figure 26).



Similar to current smokers and current cheroot smokers, prevalence of current hand-rolled cheroot smoking was reported high among lower education status and low economic group. (Annex 2, Table 9)

3.3.10 Current cigar smoking

Current cigar smoking was reported as 1.3% (2.1% of males and 0.5% of females). Among males it was reported twice than urban males. (Annex 2, Table 10)

3.3.11 Age, sex, income, education and different types of smoking

Higher prevalence of hand-rolled cheroot, hand rolled cheroot and cigar smoking was reported among older age group (> 45 years); whereas higher prevalence of cigarette smoking was reported highest among 15-24 age group (i.e. >60%). (Annex 2, Table 11)

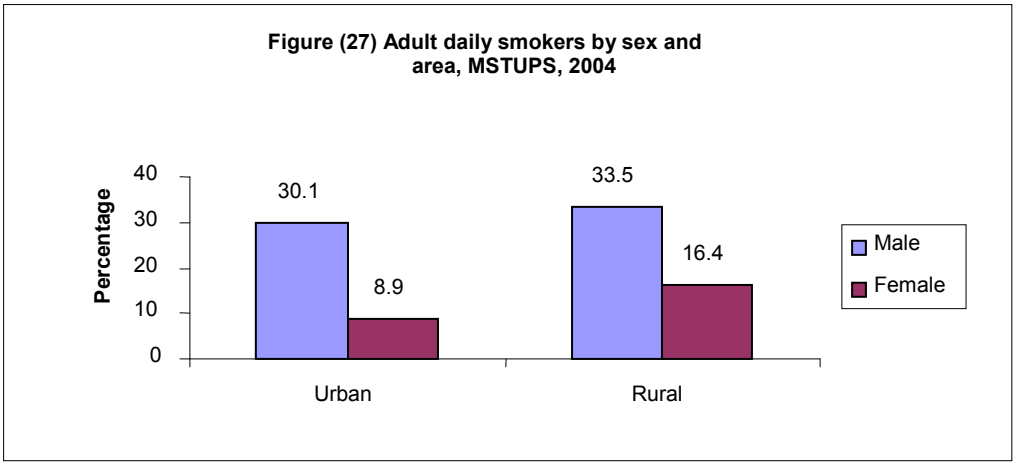
Apart from hand-rolled cheroot smoking which was reported in females than males, all other types of smoking was reported nearly four times higher in males than females.

Cigarette smoking was reported higher in higher income groups whereas hand-rolled cheroot smoking was higher in lower income groups. But there was no significant difference in prevalence of cheroot smoking among different income groups.

When compared within education groups, hand-rolled cheroots was reported highest among illiterates and primary school graders and was almost negligible among middle and high school graders and none among university graduates. Association between education and type of smoking was significant for all types of smoking (i.e. cigarette, cheroot, hand-rolled cheroot and cigar) at p= 0.00.

3.3.12. Adult daily smokers, adult daily smokeless tobacco users and adult daily tobacco users

Adult daily smokers among the respondents were reported as 23.6% (32.6% of males and 14.4% of females). (Figure- 27) More people from rural areas reported of smoking than people from urban areas (19.1% Vs 25.1%). Daily smoking rate was highest among illiterates and declined with higher level of education. (Table 14, Annex 2). When compared within family income groups it was found to be highest in the lowest income group. Difference rates of smoking rates among education and income groups were significant.

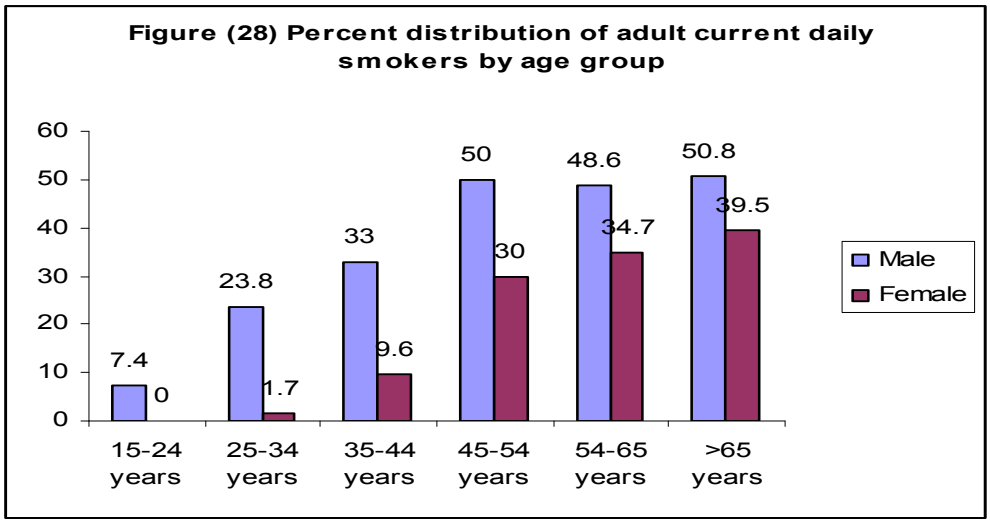


Adult daily smokeless tobacco users were reported as 16.3% (28% of males and 4.4% of females). Higher prevalence of daily smokeless tobacco users were found in rural areas than urban and it was low among illiterates and lowest income group. (Table 15, Annex 2)

Adult daily tobacco users among the respondents was reported as 35.4% (52.2% of males and 18.3% of females) and it was more common among rural people. (Table 16, Annex 2)

Adult non-daily smokers were reported as 4.3% (6.9% of male and 1.7% of female) and adult non-daily smokeless tobacco users were 2.4% (4.2% of males and 0.5% of females).

Within age groups, adult current smokers were found to be highest among middle age and old age. (Annex 2, Table 17, Figure 28).



3.3.13 Current smokeless tobacco user

Current smokeless tobacco users were reported as 16.7% of the respondents (28.8% of males and 4.4% of females respectively). It was nearly six times higher in males than females (Annex 2, Table 6).

Smokeless tobacco use was reported one and a half times higher in rural than in urban areas.

Paradoxical to smokers there was no significant difference within income groups but it was more common among primary and middle school graders.

Most common form of smokeless tobacco use was in the form of betel quid with tobacco (16.2%) and chewing of raw tobacco (0.3%). Betel quid with tobacco was much more common than chewing raw tobacco.

Betel chewing was reported nearly six times more in males than females i.e. 27.8% vs. 4.4% (Annex 2, Table 12). More people from rural areas have a habit using betel quid than urban i.e. 17.6% vs. 12.2%. Within education groups, it was reported more among primary and middle school graders. Within income groups, it was reported lowest among the lowest and highest income groups.

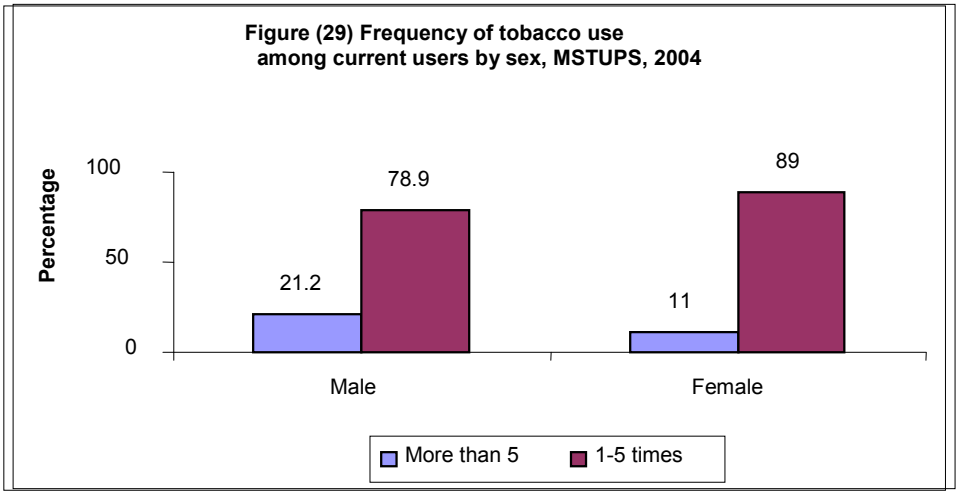
Current raw tobacco chewing was reported only in rural and among males (Annex 2, Table 13). It was reported only among illiterates and persons with primary school education and among lower income groups.

Within age groups, there was no significant pattern of daily smokeless tobacco use. (Annex 2, Table 19).

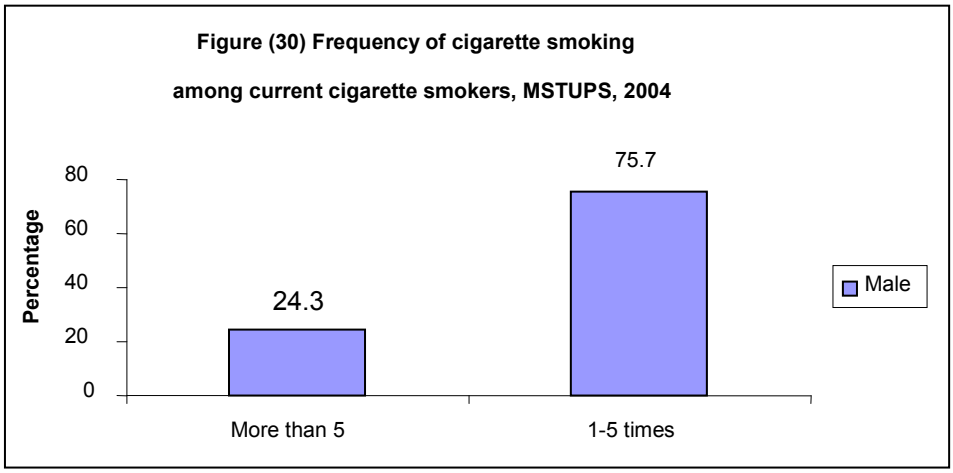
3.3.14 Age at first ever use, first regular use, frequency and duration of tobacco use among adult tobacco users

The mean age for first ever use of tobacco use was 18 years, first regular use was 20 years.

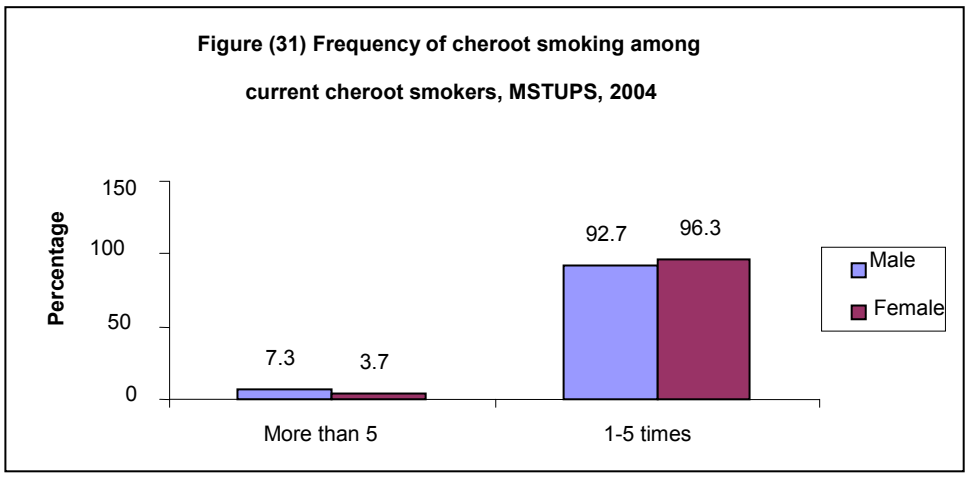
Among the respondents, males than females reported for 6(+) times a day (21.2% and 11% respectively (Annex 2, Table 24, Figure 29).



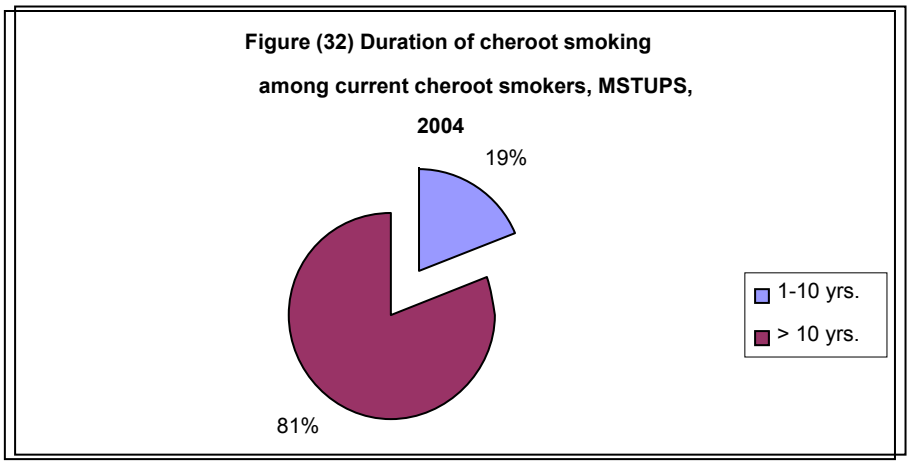
There were only male current cigarette smokers and among them about three quarters of male smokers reported to smoke 1-5 times a day and only 24.3% males smoked 6 or more times a day. (Annex 2, Table 83, Figure 30.)



More male current smokers reported for smoking cheroots more than 5 times a day than female current smokers. (Figure 31)

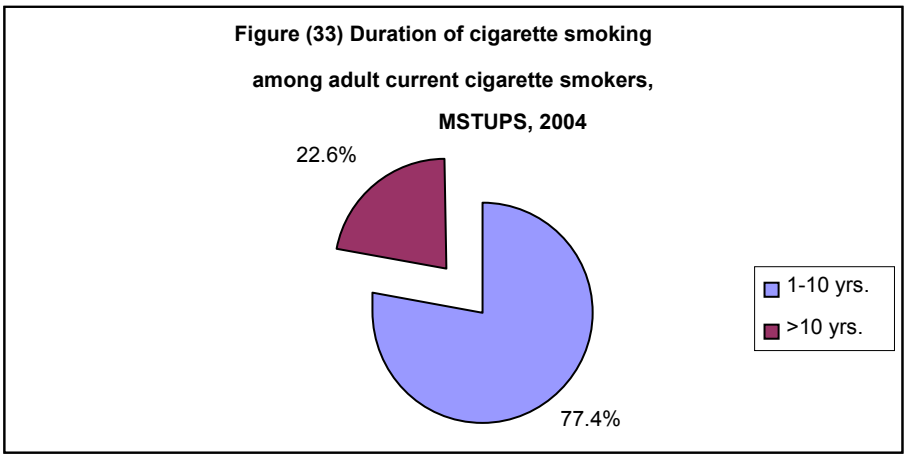


Among the adult cheroot smokers, 80.7% reported of smoking cheroots more than 10 years and only 19.3% reported of cheroot smoking for less than 10 years (Figure 32). This reflected the older age group of cheroot smokers.

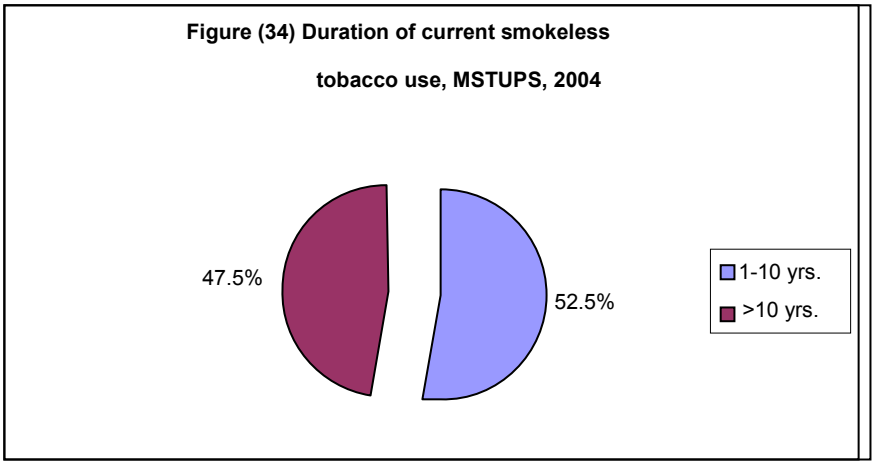


Among the current cigarette smokers, 77.4% reported of smoking cigarettes for 1-10 years and only 22.6% reported of smoking more than 10 years (Figure 33). This

reflected the relatively younger age group of cigarette smokers and also that cigarette smoking was becoming popular among younger generation.

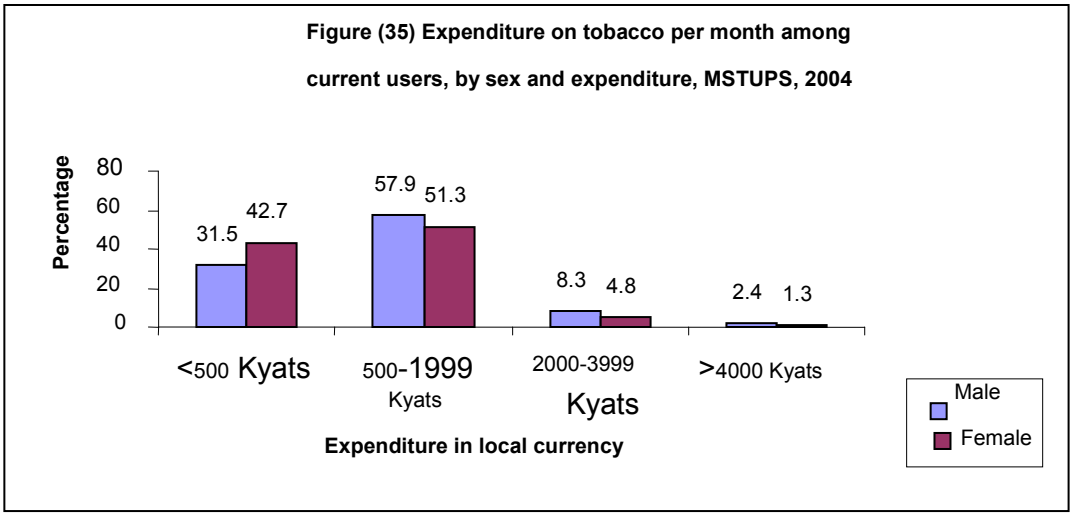


Among the respondents, 47.5% of current smokeless users reported tobacco use of more than 10 years and 52.5% reported of 1-10 years. (Figure 34)



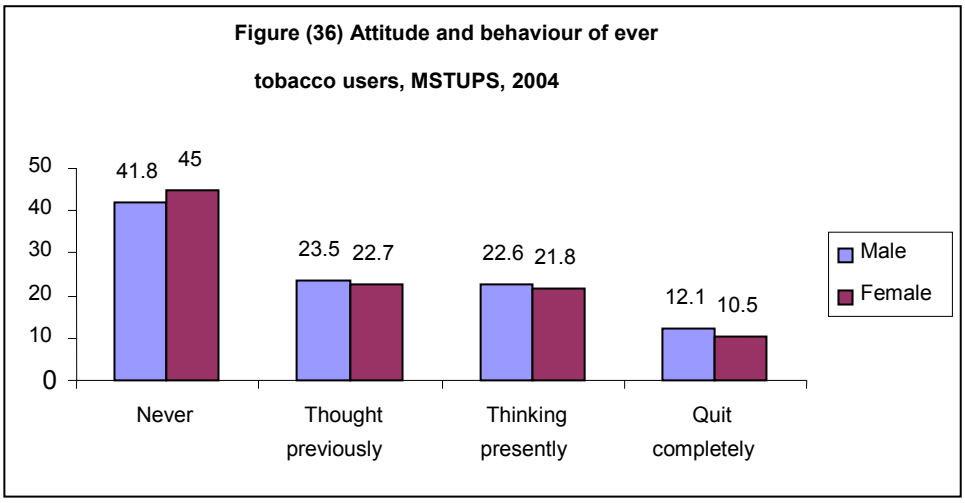
3.3.15. Expenditure on tobacco use

The majority of the current users reported to spend (500-1999) kyats per month on tobacco. Females reported to spend less than males (Figure 35). Expenditure on different types of tobacco use is described in Table 25, Annex 2. It could be seen in Table 25 that expenditure for cigarettes was highest followed by expenditure for betel quid with raw and modified tobacco. Expenditure for hand-rolled cheroots was the least among all types of tobacco products.



3.3.16.Attitude and behaviour of ever tobacco users

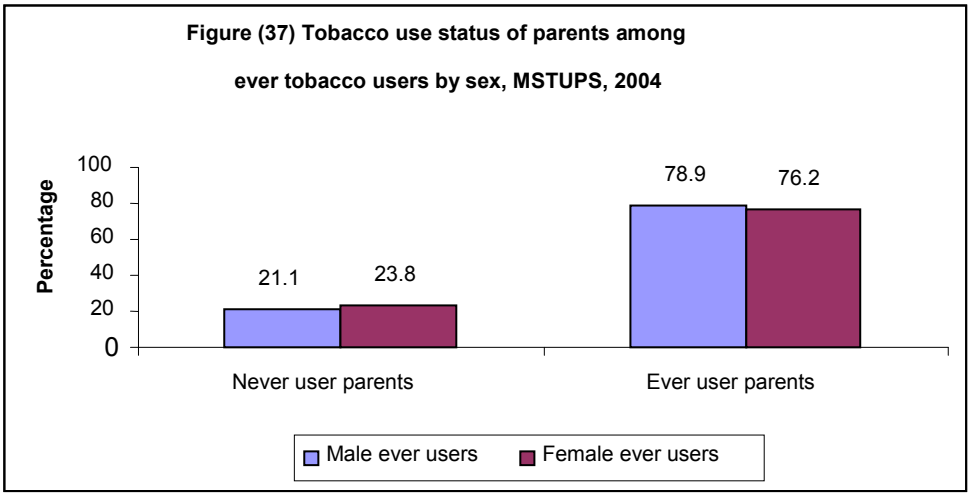
Among the ever user respondents, percentage distribution of attitude and behaviour on quitting tobacco use are very similar between males and females. Majority of them (about 40%) never thought of quitting, around 20% had thought to quit and the same percent were thinking of quitting at the time of survey and about 12% had quit completely.



Reasons for thinking of stopping or cutting down tobacco use among male thinkers and quitters were reported as 79.7% for long term health impacts, 10.6% for economic impact and 2.7% because of suggestion of health personnel and inconvenience in work 2.4%, 0.4% for pressure from friends and family and 0.3% for cosmetic effects. (Table 26, Annex 2)

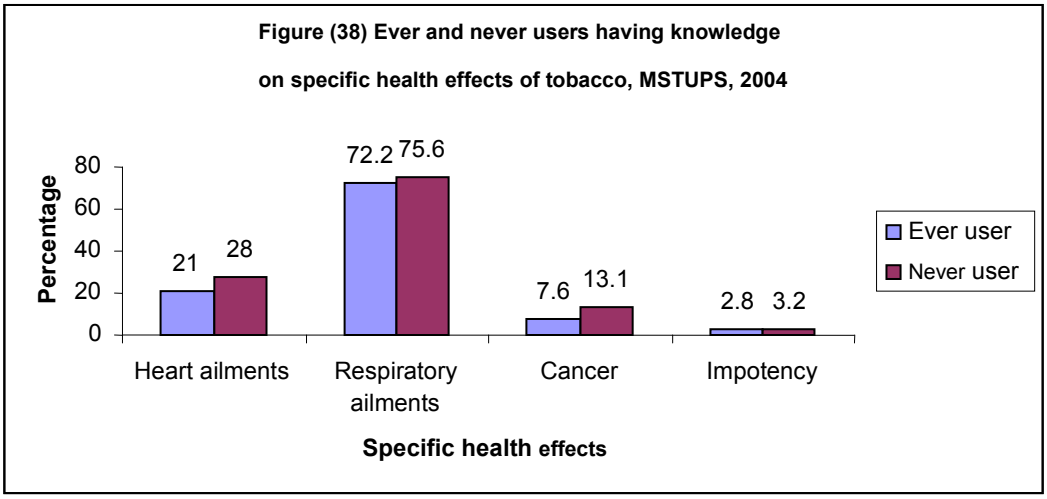
3.3.17.Parental tobacco use

Higher percentage of ever user parents were reported with both male and female ever users (Figure 37).

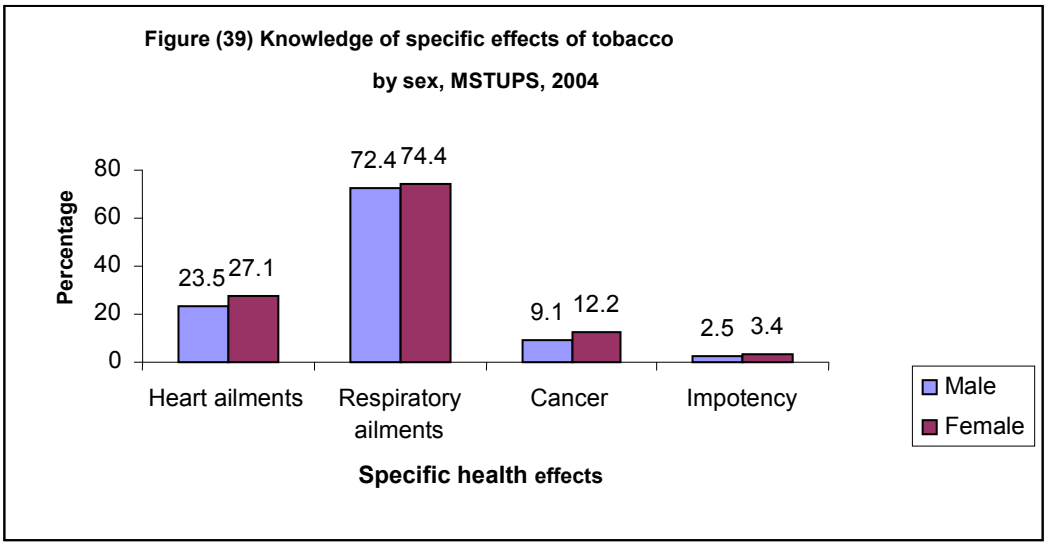


3.3.18. Knowledge of specific health effects of tobacco

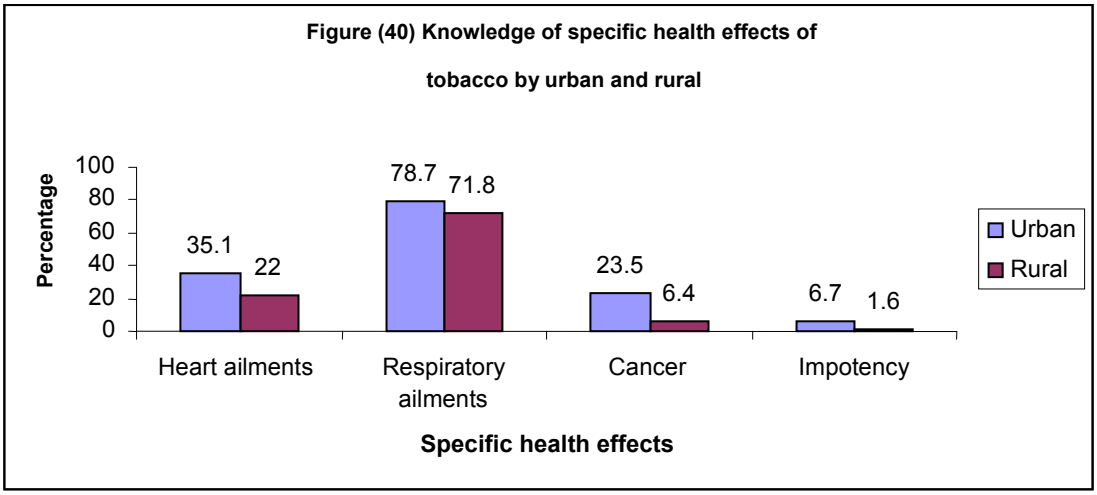
Never users than ever users reported for having knowledge of specific health effects of tobacco (Figure 37). Except knowledge about impotency effect, differences of all other knowledge between never users and ever users are statistically significant. (Table 27, Annex 2). Highest percentages of knowledge in both ever users and never users was knowledge on respiratory ailments i.e. 73%, about 10% knew about cancer and about 3% reported to know about impotence. (Figure 38)



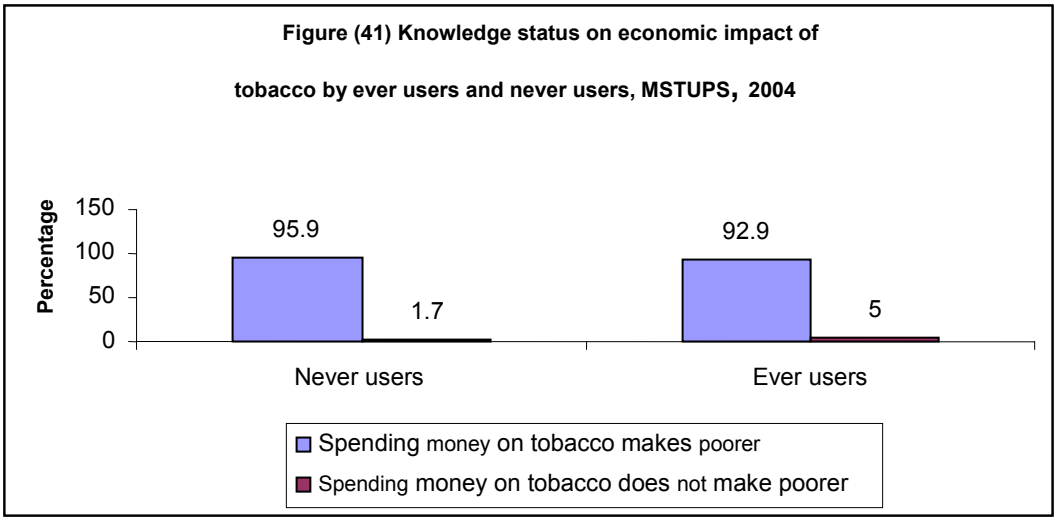
Females than males reported to have knowledge of specific health effects of tobacco (Figure 39).



Urban people have higher level of knowledge on knowledge of specific health effects and it was statistically significant (Figure 40).

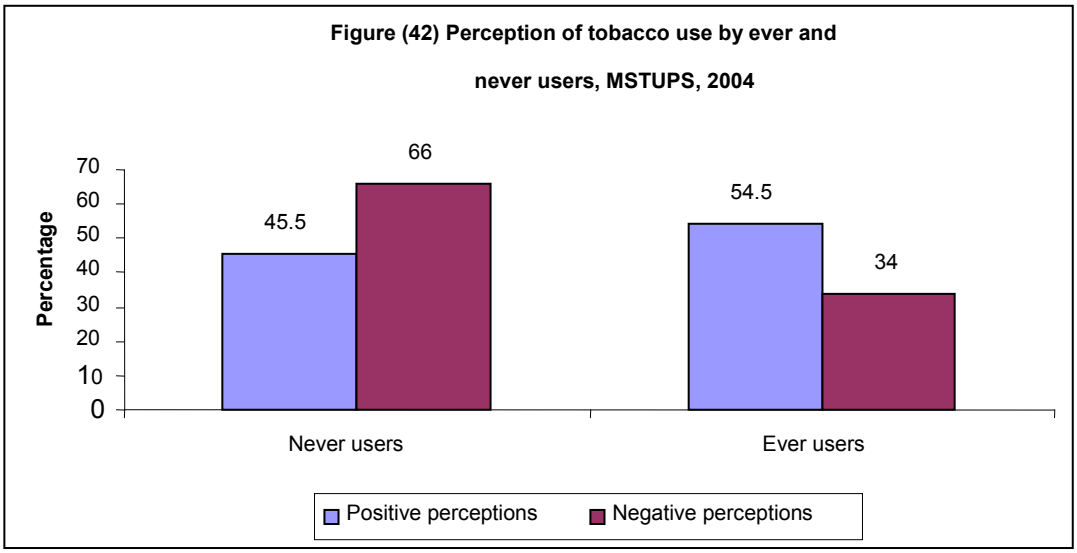


Nearly twice of ever users than never users reported that spending money on tobacco does not make people poorer. (Figure 41)



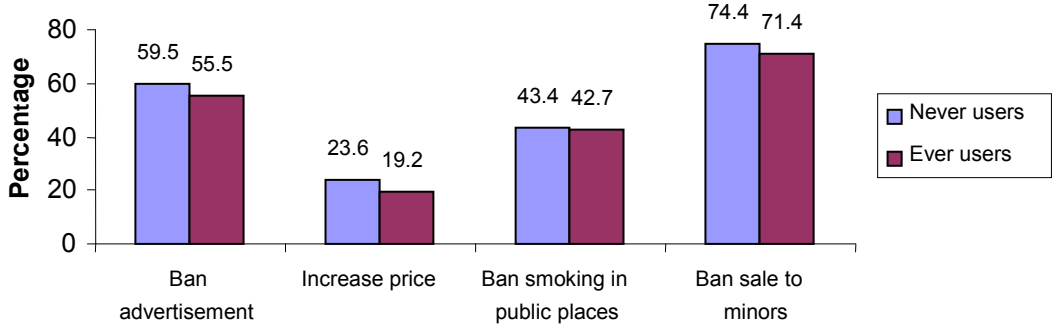
3.3.19 Perception of tobacco use and perception towards tobacco industry

Significantly higher percentage of ever users than never users reported that tobacco use in a positive perception i.e. smoking is fun or relaxing, relieve loneliness, makes good ideas, as a outlet of stress (54.5% and 45.5% respectively). On the contrary, significantly higher percentage of never users than ever users reported that tobacco use in a negative perception such as it is foolish/ weakness, buying diseases or sign of selfishness. (Figure 42).



There were significant differences between ever users and never users reported to support various measures of tobacco control except ban sale to minors. (Figure 43).

Figure (43) Supporting tobacco control measures by ever users and never users, MSTUPS, 2004



Chapter Four: Discussions

4.1 Studies Conducted on Smoking Prevalence

Several studies on prevalence of smoking had been conducted over the past few years by different departments under the Ministry of Health. The following are the findings of surveys conducted. Unpublished relevant information from some studies is quoted in this report with the permission of the investigators concerned. They are marked with the symbol (*).

Survey Findings

(1) In a cross-sectional **Cardio Vascular Disease (CVD) Survey** of adults within the urban and rural areas of Yangon Division, carried out in **1989/90**, a subgroup analysis of 2611 persons included in the sample population, (1195 in urban areas and 1416 in rural areas) showed that the *overall prevalence of smoking in urban areas was 58%, and that in the rural areas 59%.* Among the *urban* population, *74% of the males and 46% of the females* smoked. In the *rural* study population, *68% of the males and 55% of the females* were smokers. [1]

(2) In **1991**, **a study of smoking habits among middle and high school children** was carried out in North Okkalapa Township, a peri-urban area of Yangon City. Out of 2101 children investigated by self-administered questionnaires, smoking habit was found in *47.71% of boys and 2.92% of girls.* The smoking prevalence was found to be highest among children aged 16 years of age and attending eighth standard. Among those who smoked, 56.67% were occasional smokers and 30.66% were regular smokers. A majority of smokers (94.10 %) started smoking between 14 and 18 years of age. [2]

(3) In **1994, a study of smoking habits of Myanmar Health Personnel** covered doctors, nurses, basic health services personnel, technicians and other ancillary health workers. Out of a total of 1058 respondents in 25 townships in Yangon Division chosen at random, *only 17.3% reported to be smoking*, while 7.1% had stopped smoking, 75.4% did not smoke. Among doctors, 13.6% of professors, lecturers and specialists, 9.3% of junior doctors were smokers. While 8.9% and 40.38% of basic health and ancillary health workers were found to smoke; the figure for nurses, midwives, lady health visitors combined was only 2.8%. [3]

(4) **A rapid survey of women above 18 years** of age in Thanlyin Township in **1996** revealed that the female *smoking prevalence among females was about 8.2% in urban areas and 24.8% in rural areas* (n=279), Central Statistical Organization.

(5) In **September 1999,** the Institute of Medicine (1) conducted a cross sectional analytic **study** on **prevalence trend of youth smoking** in 29 townships belonging to Bago, Magwe and Mandalay Divisions. The study covers a total of 3856 youths between 15 to 24 years of age. The overall prevalence of *smoking among youth* was found to be *over 50%* with the *prevalence among males being 68% and that of females a little below 6%.* Among youths, more than two thirds of males and more than 5% of females were reported to be current smokers. Among the population studied, cheroot was the commonest tobacco product used; cigarettes followed it. The occasional use of cigars and homemade cheroots was also found among youth smokers [4].

(6) In the same year, a **study on prevalence of smoking was conducted** covering a total of 23975 persons residing in 4800 households of the same 29 townships as above. The overall community prevalence of smoking was found to be over *30%, the prevalence among males being 50% and that among females being a little below 9%*. Less than 20% of households under study were reported to have no smokers and at least 1 smoker resided in more than 80% of households visited. Smoking prevalence among those aged 14 years and over was found to be about 39%. When smoking was differentiated by sex among adults over 14 years of age, 64% of males and 11% of females were reported to be smokers [5]. Smoking at the age of *15* was found to *be 37%* among males, and 1.03% among females [5].

(7) The Institute of Medicine (1) conducted **prevalence studies** in the same townships again in the **year 2000**. A cross-sectional study on prevalence of current smokers (more than 100) was conducted among 3059 persons subjected to the study, *55.4%* were found to be current smokers; *59.9 percent happened to be males* and *28.8% females* [6].

(8) The **adolescent reproductive health survey** conducted by MCH section of the Department of Health in the **year 2000** revealed that among the sampled *male adolescents*, *68.8%* had ever experienced smoking in their life time, and *56.3% were current smokers* whereas *8.8% of female* adolescents had experienced smoking although *only 1.4% were current smokers*. It was found that for male adolescents, smoking was more common among urban dwellers, but for females, rural dwellers had used tobacco more often than urban dwellers. Comparison between in- school and out- of -school youths revealed that there was a higher percentage of tobacco use among the out- of -school youths[7].

(9) In the year 2000, the Tobacco Free Initiative Project of the Department of Health conducted a **Research on Socio-economic determinants of tobacco use** in three townships belonging to Yangon, Mandalay and Ayarwaddi Divisions; Insein, Madaya and Hinthada. Research findings revealed that a *prevalence rate of (28.8) % for the general population (n=5631), the prevalence rate being 46.4 % of males and 15.4% of females*. Among the population aged *15 years and over, 38.3% were found to be current smokers, 58.7% of males against 20.1% of females.* It shows strong association between type of smoking and socio-economic factors: income, occupation and education. [8]

Parental smoking and the urge to experiment due to the presence of smokers nearby are found to have significant influences on the experimentation of smoking, although current smokers did not mention peer pressure as the cause of experimentation. No significant association is found between alcohol drinking and smoking, but there is a significant association between smoking and chewing of betel nut (kun) with tobacco and retention of tobacco in the mouth.

(10) A **Study on Tobacco Economics** was conducted in 2000-2001 by Nyo Nyo Kyaing et al. Household surveys were conducted in five townships: Magwe in Magwe Division, Ayetharyar in Shan States (South), Maulamyein in Mon State, Bago in Bago Division and Monywa in Sagaing Division.[9]

The study revealed that 22.8% of urban population and 19.5% of rural population, 33.9% of males and 8.09% of females above 6 years of age had smoked at least once in their lifetime (ever smokers). *Prevalence rate of current smokers was (19.2)% of the urban population and (17.8)% of the rural population aged above 6 years, 30.62% of males and 7.09% of females.* As for those *above age 15 years*, *22.6% of urban population and 48.7% of rural population* were current smokers. The *mean age at experimentation was 21.6 years*. Tobacco use was more prevalent among males than females in all age groups, both in urban as well as rural areas.

(11) **The Myanmar Sentinel Tobacco Use Prevalence Study (MSTUPS) 2001** was conducted in 2001 at two sentinel sites, Hinthada and Pakkuku. A total of 120 clusters with 55 persons above 10 years of age in each cluster were surveyed (n=6600); using pre-tested structured questionnaires.

The study revealed that 28.7% of urban population and 36.9% of rural population, 47.3% of males and 24.8% of females above 15 years of age had

smoked at least once in their lifetime (ever smokers). *Prevalence rate of current smokers was (27.6)% of the urban population and (32.4)% of the rural population aged above 15 years, 42.9% of males and 21.9% of females.* Tobacco use was more prevalent among males than females in all age groups, both in urban as well as rural areas [10].

(12) **The Global Youth Tobacco Survey** was conducted in 2001.It was a multi-stage, school-based, two –cluster survey (n= 5750, 8th, 9th and 10th graders) conducted in 96 basic education middle and high schools of Myanmar, using a pre-tested, modified questionnaire based on the Global Youth Tobacco Survey questionnaire developed by Office on Smoking and Health of Center for Communicable Disease Control, Atlanta. Among the sampled population of 4721, about one in four students have ever tried tobacco and one in five students were currently using some form of tobacco at the time of survey; *37.3% of males and 4.7% of females were reported as current users. About 16.9 % of students (30.9 % of males and 3.8% of females) were currently smoking at the time of survey,* the majority of which smoked cigarettes. More than 20% were using smokeless tobacco, mainly in the form of betel quid with tobacco. The majority (two-thirds) of current smokers who bought any form of smoking tobacco in a store were not refused purchase because of their age [11].

(12) The **WHO STEPwise approach to NCD Surveillance in Yangon Division** was conducted by NCD Project in 2003-2004; the study population was adults aged 25 to 74 years residing in both urban and rural areas of Yangon Division. Among 4448 sample population, *23.2% of the population (36% of males and 11.11% of females) were currently smokers* [12].

(13) **A Pilot Study on Global Medical Doctors Survey** was conducted in Myanmar in 2003. Mail-out survey was conducted to 617 registered doctors, out of which 230 responded. Less than 10% of respondents were tobacco users. *About 20% of males and only 0.8% of females were tobacco users; 12% of males were smokers, 4% did not smoke but chewed betel quid with tobacco and 3% answered that they smoked as well as chewed betel quid.* Only one female doctor out of 137

smoked and she smoked cigarettes. It was significant that none of the female doctors chewed betel quid with tobacco[13].

(14) **The Global Health Professionals Survey** was conducted in January, 2006. A census study of third year students of medical, dental and pharmacy schools using a pre-tested, questionnaire prepared in coordination with the Office on Smoking and Health, Center for Communicable Disease Control, Atlanta. *Among the sampled population of 276 dentistry students, about one in three dental students (35.8) % have ever smoked cigarettes; two in ten dental students (21.7) % were currently smoking cigarettes; (31.3) % of males and (4.1) % of females were reported as current cigarette smokers; (45.3)% of current cigarette smokers responded they desired a cigarette within 30 minutes of awaking in the morning which indicates strong nicotine dependence. About one in eight (13.3%) were using other form of tobacco products* such as chewing tobacco, chewing betel quid with tobacco, cigars or pipes. Males were statistically more likely to use chewing tobacco, snuff, cigars, or pipes than females.

Among the sampled population of 1482 medical students, about three in ten medical students (28.9) % have ever smoked cigarettes; one in ten medical students (12.6) % were currently smoking cigarettes; (24.8) % of males and (1.4) % of females were reported as current cigarette smokers; (37.7)% of current cigarette smokers responded they desired a cigarette within 30 minutes of awaking in the morning, a finding which indicates a strong nicotine dependence. About one in ten (11.3%) were using other form of tobacco products such as chewing tobacco, chewing betel quid with tobacco, cigars or pipes. Males were statistically more likely to smoke cigarettes as well as to use chewing tobacco, snuff, cigars, or pipes than females.

Among the sampled population of 343 pharmacy students, about one in seven pharmacy students (14.7) % have ever smoked cigarettes; (2.7) % were currently smoking cigarettes; (2.5) % of females were reported as current cigarette smokers; sample size of male pharmacy students were too small to compare with females. About one in twenty five (4.1%) were using other form of tobacco products such as chewing tobacco, chewing betel quid with tobacco, cigars or pipes[14].

1. CVD Project and AIDS Project, Department of Health and Department of Preventive and Social Medicine, Institute of Medicine (1*), Prevalence of Cardiovascular Diseases in Rural areas of Hmawbi and Urban Yangon City,* (1991)
2. Dr. Saw Win, Smoking *among middle and high school children in North Okklapa Township*, A dissertation as partial fulfillment towards a Masters Degree in Paediatrics (1991).
3. Khin Maung Lwin et al, Central Health Education Bureau, CVD Project, Department of Health and Department of Medical Research , *A study of smoking habits of Myanmar Health Personnel*, 1994.
4. Myo Oo, Tracy Sein et al, Department of Preventive and Social Medicine, Institute of Medicine (1), Prevalence *Trend of Youth Smoking in 29 townships of Bago, Magwe and Mandaly Divisions,* September 1999.
5. Khin Saw Naing, Tracy Sein et al, Department of Preventive and Social Medicine, Institute of Medicine (1), *Prevalence of Smoking in 29 townships of Bago, Magwe and Mandaly Divisions,* September 1999.
6. Department of Preventive and Social Medicine, Institute of Medicine (1), *Prevalence of Smoking in 25 townships of Bago, Magwe and Mandaly Divisions,* 2000, (Presented data, 2000)*
7. Adolescent Reproductive Health Survey, MCH Section, Department of Health (2000) *
8. Nyo Nyo Kyaing, Soe Naung et al, Tobacco Free Initiative Project, Health, Department of Health *A study on Socio-economic Determinants of Tobacco use*, (2001)*
9. Nyo Nyo Kyaing , Tobacco Free Initiative Project, Health, Department of Health *A study on Tobacco Economics in Myanmar*, (2001), World Bank HNP series No:14, www.worldbank.org/tobacco.
10. Nyo Nyo Kyaing , Tobacco Free Initiative Project, Health, Department of Health *Myanmar Sentinel Tobacco Use Prevalence Study*, (2001). Report to WHO SEARO.
11. Nyo Nyo Kyaing et al, Tobacco Free Initiative Project, Health, Department of Health *Global Youth Tobacco Survey* , (2001). Report to WHO SEARO and CDC, Atlanta.
12. NCD Project, Department of Health, *WHO STEPwise Approach to NCD Surveillance , Yangon Division, Myanmar(2003-2004).*Report to WHOSEARO.
13. Nyo Nyo Kyaing , Tobacco Free Initiative Project, Health, Department of Health *A Pilot Study on Global medical Doctors Survey in Myanmar*, (2003). Report to WHOSEARO and CDC, Atlanta.
14. Nyo Nyo Kyaing et al , Tobacco Free Initiative Project, Health, Department of Health *Global Health Professionals Survey*, (2006). Report to WHOSEARO and CDC, Atlanta

In Table 4.1 the prevalence rates from the above surveys were summarized. In Table 4.2 prevalence rates for specific age or sex groups were summarized from specific studies. Each study had different design and methodology and different instruments had been used. Some of the studies did not specify the status of smokers whether they were ever smokers or current smokers. Thus, it was not possible to draw a trend line. None of these studies can be said as representing the whole country. The findings from this sentinel prevalence study were expected to reflect the trend of national prevalence rates if conducted periodically and regularly.

Table 5.1 Prevalence rates of smoking from studies conducted in Myanmar

Percentage of smokers

Source	Year	Region	Age	Residence	Both Sexes	Male	Female
1. CVD Survey	1989/90	Yangon Division	18 +	Urban	58	74	46
				Rural	59	68	55
2. Smoking prevalence survey	1999	29 townships of Bago, Magwe and Mandalay Division	All ages	Combined	30	50	9
3. Smoking prevalence survey	2000	29 townships of Bago, Magwe and Mandalay Division	All ages	Combined	55.4	59.9	28.8
4. Research on socio-econmic determinants of tobacco use	2000	Insein, Madaya and Hinthada	15+	Peri-urban and rural	38.3	58.7	20.1
5. Study on Tobacco economics Household survey	2000	Magwe, Ayethayar Maulmein Bago, Monywa	10+	Urban	19.2	34.5	6.3
				Rural	17.8	29.4	7.3
				Total	18.18	30.6	7.1
6. Myanmar Sentinel Tobacco Use Prevalence Study 2001	2001	Hinthada and Pakkuku	+15 years	Urban	27.6	44.5	15.4
				Rural	32.4	42.3	24.4
				Combined	31.1	42.9	21.9

7. WHO STEPwise approach to NCD Surveillance in Yangon Division	2003-2004	Yangon Division	25-74	Urban		40.2	9.9
				Rural		46.6	19.3
				Combined	23.2	36	11.1

Table 4.2 Prevalence rates of smoking for specific groups from studies conducted in Myanmar

Percentage of smokers

Source	Year	Region	Age	Residence	Both Sexes	Male	Female
1. A study of smoking habits among middle and high school children	1991	North Okkalapa Yangon Division	10-18	Peri-urban	na	47.1	2.9
2. Smoking habits of Myanmar health personnel	1994	25 townships of Yangon Division	18+	Combined	17.3	na	2.8
2. Rapid survey of women	1996	Thanlyin	18+	Urban	na	na	8.2
				Rural	na	na	24.8
3. Study on prevalence trend of youth smoking	1999	29 townships of Bago, Magwe and Mandalay Division	15-24	Combined	50	58	6
5. Adolescent reproductive health survey	2000	Yangon Division	15-24			56.3	1.4

6.Pilot Study for Global Medical Doctors Survey	2003	Nation wide	>30	Combined		12	0.8
7. Global Youth Tobacco Survey	2001	Nation wide	13-15	Combined	16.9	30.9	3.8

4.2 Different types of tobacco use

Different types of tobacco are used in Myanmar. The most common forms of smoking include cheroots, cigarettes, hand-rolled cheroots, pipes and cigars and the most common forms of smokeless tobacco use are chewing of betel quid with tobacco, lime and betel nut or modified tobacco and chewing of raw tobacco.

Percent distribution of tobacco use showed that smoking of cheroots was highest (37%) followed by using of betel quid with tobacco (37%), followed by hand-rolled cheroots (16%), cigarettes(6%), smoking of cigars(3%) and chewing of raw tobacco (1%) . Using of both smoking and smokeless forms simultaneously was common. Studies showed that there was significant association between smoking and use of betel quid.

The most commonly used smoking form of tobacco was cheroots, followed by hand-rolled cheroots, cigarettes and cigars . Cigarette smoking was highest among the 15-24 age group whereas other forms of smoking products were highest among the >45 age group.

Tobacco use was reported higher within low education and low income groups and in rural areas. Paradoxically cigarette smoking was higher in higher income groups although cheroot smoking and smoking of hand-rolled cheroots was higher in lower income groups; significant at p=0.000.

When compared within education groups, hand-rolled cheroots was highest among illiterates and those who had primary school level and was almost negligible among those who had high school level of education and among university graduates. Smoking of cheroots was also lowest in university graduates and high school graders.

Association between education and type of smoking was significant for all forms of tobacco products at p=0.00.

Current cigarette smoking was higher in higher income groups whereas cheroot smoking and smoking of hand-rolled tobacco was higher in lower income group; significant at p= 001.

There was not much difference in current smokeless tobacco use prevalence rates among income groups. However, prevalence rate of current smokeless tobacco use was found to be lower in highest income groups. Prevalence rates of current smokeless tobacco use was found to be lower with higher education groups. Negative association between current smokeless tobacco use and education level is significant at p=0.000.

4.3 Association between parental tobacco use and ever and current tobacco use

Similar to the findings of other studies conducted in various countries, parental tobacco use as highly associated with ever and current tobacco use.

It was reported that current use by either parent of any tobacco had highly significant association with ever use of tobacco at p=0.000, with ever smoker at p=0.01, with current use at p=0.00, current smoker at p=0.00, with ever smokeless user at p= 0.000 and with current smokeless tobacco user at p= 0.05.

In Myanmar culture, the family value is very strong. Children are very close to the parents and usually regard their parents as role models. Teenage experimentation with tobacco was largely associated with the cultural habit of mothers or fathers asking their children to light the cheroots for them as cheroots are usually lighted with fire from the kitchen.

Peer pressure is also a very important determinant of tobacco use. In this study, this fact had not been asked during the study.

4.4 Association between knowledge of health hazards, perception of tobacco use, perception towards tobacco industry and tobacco use

Awareness of health hazards of smoking and smoking status was highly significant for ever smokers at p= 0.001 and for current smokers at p=0.00. There was also significant association between use of ever user of smokeless tobacco and knowledge of health hazards of tobacco at p= 0.05.

Association between knowledge of harmful effects of passive smoking and ever smokers was significant at p=0.02 and with ever smokeless tobacco use at p= 0.02.

Cultural as well as religious views in Myanmar do not regard tobacco use as immoral or sinful. Tobacco use has been widely accepted as a social norm for many years. It is used as well-wishing gift at various ceremonies and is usually served with green tea to house guests. It is also included among the three essential things that should be offered to monks and guests; namely tobacco, betel quid and green tea leaf (*hsey, kwan and lephet)*

Buddhism in Myanmar differs from Buddhism in Bhutan where Mahayana Buddhism prohibits smoking. Smoking is a *sin* in Bhutan and all religious orders are strictly prohibited from smoking. In Therawadda Buddhism that was worshipped by about 80% of the population in Myanmar, people usually follow the five *thelas* or commandments everyday. These include abstinence from killing, abstinence from taking other peoples possessions without being given (in other words stealing), abstinence from telling lies, abstinence from committing adultery and abstinence from drinkng any form of alcohol. Thus, Buddhist teachings in Myanmar strictly prohibits drinking alcohol but does not prohibit smoking or any form of tobacco use. These cultural and religious views are great challenges for tobacco control programme in Myanmar.

There was significant difference in perception of tobacco use within sex groups, income groups and education groups. Negative perception was higher among females, higher income groups and higher education groups and positive perception was higher among males, lower education groups and lower education groups. Difference in perception of tobacco use within sex groups was highly significant at p=0.00, within income groups at p=0.00 and within education groups at p= 0.01. Findings show that

prevalence rates of ever and current smokers was higher among those who had positive perception towards tobacco use. Association was highly significant at p=0.00.

It was also reported that prevalence of ever and current smokers was high among those who answered that tobacco use is not a cause of poverty, that it is not an economic burden on the household. It was highly significant for both type of smokers at p=0.00.

Higher prevalence of negative attitude towards tobacco industry was reported within higher education groups, significant at p=0.001.

The majority (more than 70%) reported to support tobacco control policy.

4.6 Recommendations

Myanmar became Party to the WHOFCTC in 2004, October. Government of Union of Myanmar had adopted the Control of Smoking and Tobacco Product Consumption Law in May 2006 which will come into effect in May 2007. Measures to promote law enforcement should be heightened: advocacy campaigns, promoting community awareness, training of law enforcement personnel, surveillance and research.

Behaviour change communication and health promotion measures for tobacco control should be strengthened to reach the rural people, the low income group and the low education group as the survey findings reported high prevalence of tobacco use among them.

Training of health personnel in tobacco control activity is needed to enhance their capacity on behavioral change. Financial and technical support from WHO is much needed for establishment of cessation clinics and counseling services.

Measures to increase tax and price of tobacco products have proved to be strongly effective to reduce tobacco consumption in many countries. Price of cheroots as well as cigarettes in Myanmar are relatively much cheaper than other countries. By increasing tax rates on tobacco products, the government will increase its revenue and on the other hand tobacco consumption will be reduced significantly . *Ear-marked tax or sin tax* should be charged on tobacco and liquor and a certain pecentage from this should be used for tobacco and alcohol control programmes.

More studies on prevalence of tobacco use, determinants of tobacco use, health effects of cheroots, betel quid with tobacco and chewing of raw tobacco etc, should be conducted.

Sentinel prevalence studies should be conducted regularly to know the trend of tobacco consumption. Technical and financial assistance from WHO is essential for these studies.

Surveillance system and exchange of information should be strengthened between WHO South East Asia Countries and ASEAN countries through information network.

Annex 1.

Table 1. Study Population by geographical location

Geographical location	Frequency	Percent
Hinthada	3082	48.1
Pakokku	3332	51.9
Total	6414	100.0

Table 2. Study Population by urban/rural status

Urban/Rural status	Frequency	Percent
urban	1615	25.2
rural	4799	74.8
Total	6414	100.0

Table 3. Study Population by sex

Sex	Frequency	Percent
Male	3226	50.3
Female	3187	49.7
Total	6413	100.0

Table 4. Study Population by age group and sex

Age group	Male	Female	Total
<15	249	217	466
15-24 yr	674	798	1472
25-34 yr	563	589	1152
35-44 yr	554	544	1098
45-54 yr	538	447	985
55-64 yr	315	329	644
>65	333	263	596
	3226	3187	6413

Table 5. Percent distribution of study population by income group

Sex	Percent
1000 to 25000	50.5
25001 to 50000	40.7
50001 to 75000	4.4
75001 to 100000	3.6
100001 and above	.8
Total	100.0

Table 6. Percent distribution of study population by marital status

Marital status	Frequency	Percent
unmarried	2604	40.6
married	3314	51.6
divorced	69	1.1
widow/widower	427	6.7
Total	6414	100.0

Table 7. Percent distribution of study population by education and geographical area

Education level	Urban	Rural	Total
illiterate	3.0	8.0	6.7
can read and write	8.9	25.8	21.5
primary school passed	25.8	34.0	31.9
middle school passed	28.4	20.2	22.3
high school passed	17.8	9.8	11.8
university graduated	16.0	2.3	5.7
Total	100.0	100.0	100.0

Annex - 2

Table 1. Percentage distribution of Adult ever tobacco users by sex, urban rural residence, education level and income group.

	Male	Female	Total
Urban	66.2	25.5	45.4
Rural	61.9	25.1	44
Illiterate	66.6	27.6	45.1
Primary school	64.4	24	45
Middle school	66.4	26.8	47.2
High school	60.6	26.5	43.9
University	60.5	22.9	42.8
Income group 1 (lowest)	71.2	47.7	53.6
Income group 2	69.2	27.1	48
Income group 3	56.9	19.4	41.4
Income group 4	50.4	9.9	34.2
Income group 5	58.8	11	33.1
Total	**62.9**	**25.2**	**44.3**

Table 2. Percentage distribution of Adult ever smokers by sex, urban rural residence, education level and income group.

	Male	Female	Total
Urban	50.6	17.9	33.9
Rural	49.1	20.4	30.5
Illiterate	50.9	45.9	47.2
Primary school	46.5	22.7	34.4
Middle school	36.2	9	24.9
High school	37.5	4.2	24.2
University	42.4	4.7	22.2
Income group 1 (lowest)	49.8	23.5	35.3
Income group 2	42.5	20.1	31.7
Income group 3	42.9	21.9	32.7
Income group 4	41.9	18.3	30.6
Income group 5	39.9	16.6	28.8
Total	**42.6**	**19.8**	**31.3**

Table 3. Percentage distribution of Adult ever smokeless tobacco users by sex, urban rural residence, education level and income group.

	Male	Female	Total
Urban	33.5	13.9	23.5
Rural	37	7.2	22.5
Illiterate	26	5.5	10.6
Primary school	37.9	8.1	22.9
Middle school	38.5	14.2	28.5
High school	28.7	7	20
University	36.4	9.4	21.8
Income group 1 (lowest)	31.4	5.9	17.4
Income group 2	38.4	7.3	23.5
Income group 3	36.4	9.5	23.2
Income group 4	36.7	9.9	23.9
Income group 5	36.6	11.7	24.9
Total	**36.1**	**8.9**	**22.7**

Table 4. Percentage distribution of Adult current tobacco users by sex, urban rural residence, education level and income group.

	Male	Female	Total
Urban	55.1	12.5	33.6
Rural	57.2	20.6	39.3
Illiterate	68.9	43.6	49.9
Primary school	62.8	20.8	41.4
Middle school	49.5	8.3	32.4
High school	45.9	6.0	29.8
University	52.7	3.0	25.6
Income group 1 (lowest)	62.9	21.8	40.3
Income group 2	54.7	18.5	37.2
Income group 3	58.2	17.1	38.2
Income group 4	57.0	19.1	38.9
Income group 5	54.4	16.3	36.2
Total	**56.7**	**18.4**	**37.7**

Table 5. Percentage distribution of Adult current smokers by sex, urban rural residence, education level and income group.

	Male	Female	Total
Urban	41.4	9.2	24.7
Rural	37.0	16.8	27.1
Illiterate	51	43.8	45.6
Primary school	42.4	17.3	29.6
Middle school	31.0	2.6	19.1
High school	32.7	1.7	20.5
University	35.9	1	16.9
Income group 1 (lowest)	45.2	19.2	31
Income group 2	36	14.5	25.5
Income group 3	37.5	14.8	26.4
Income group 4	38.8	14.2	26.9
Income group 5	36.3	12.1	24.8
Total	**38.1**	**14.7**	**26.5**

Table 6. Percentage distribution of Adult current smokers by age group and sex

	Male	Female	Total
15-24 years	19.3	0	9.0
25-34 years	28.5	2.0	14.9
35-44 years	37.3	10.5	24.0
45-54 years	55.1	28.9	43.4
54-65 years	49.5	36.7	42.9
>65 years	53.2	41.2	47.9
Total	**38.1**	**14.7**	**26.5**

Table 7. Percentage distribution of Adult current smokeless tobacco users by sex, urban rural residence, education level and income group.

	Male	Female	Total
Urban	22.2	3.7	12.6
Rural	30.9	4.7	18.1
Illiterate	25.5	3.4	8.9
Primary school	30.7	4.2	17.1
Middle school	30.2	6.3	20.3
High school	20.9	4.7	14.4
University	29.9	3	15.3
Income group 1 (lowest)	28.5	3.3	14.6
Income group 2	29.4	4.7	17.5
Income group 3	28.8	3.6	16.5
Income group 4	30.4	5.5	18.4
Income group 5	26.5	5.3	16.4
Total	**28.8**	**4.4**	**16.7**

Table 8. Percentage distribution of Adult current smokeless tobacco users by age group and sex

	Male	Female	Total
15-24 years	12.7	2.1	11.1
25-34 years	34.6	5.3	19.6
35-44 years	41.2	5.7	23.6
45-54 years	30.5	2.9	18.0
54-65 years	24.8	8.2	16.3
>65 years	29.1	4.2	18.1
Total	**28.8**	**4.4**	**16.7**

Table 9. Percentage distribution of Adult current cigarette smokers by sex, urban rural residence, education level and income group.

	Male	Female	Total
Urban	6.9	0	3.3
Rural	4.1	0	2.1
Illiterate	2.8	0	0.7
Primary school	3.2	0	1.6
Middle school	4.9	0	2.9
High school	8.9	0	5.3
University	9.6	0	4.4
Income group 1 (lowest)	3.1	0	1.4
Income group 2	5	0	2.6
Income group 3	4.2	0	2.2
Income group 4	3.7	0	1.9
Income group 5	7.4	0	3.9
Total	**4.8**	**0**	**2.4**

Table 10. Percentage distribution of Adult current cheroot smokers by sex, urban rural residence, education level and income group.

	Male	Female	Total
Urban	28.2	7.3	17.4
Rural	23.8	5.8	15
Illiterate	24.5	14.7	17.2
Primary school	27.8	8	17.7
Middle school	24.1	1.2	14.5
High school	21.6	1	13.3
University	11.4	0	5.2
Income group 1 (lowest)	29.5	6	16.5
Income group 2	24.7	5.8	15.6
Income group 3	22.4	7	14.9
Income group 4	27.2	5.9	17
Income group 5	22.5	7.5	15.3
Total	**24.9**	**6.3**	**15.6**

Table 11. Percentage distribution of Adult current hand rolled cheroot smokers by sex, urban, rural residence, education level and income group.

	Male	Female	Total
Urban	0.3	0.9	0.6
Rural	6.9	11.2	9
Illiterate	22.6	31.3	29.2
Primary school	8.3	8.9	8.6
Middle school	0.3	0.6	0.4
High school	0.7	0	0.4
University	0	0	0
Income group 1 (lowest)	12.1	14.9	13.6
Income group 2	3.4	7.3	5.3
Income group 3	3.8	6.5	5.1
Income group 4	5.6	8.4	6.9
Income group 5	2.9	4.9	3.9
Total	**5.3**	**8.4**	**6.8**

Table 12. Percentage distribution of Adult current cigar smokers by sex, urban rural residence, education level and income group.

	Male	Female	Total
Urban	0.6	0.4	0.5
Rural	2.6	0.5	1.6
Illiterate	0.9	0.3	0.5
Primary school	3.3	0.5	1.9
Middle school	0.8	0.4	0.7
High school	1.4	0.7	1.1
University	0	0	0
Income group 1 (lowest)	1	0.4	0.6
Income group 2	3.2	1.3	2.3
Income group 3	2.6	0.2	1.4
Income group 4	2.3	0.5	1.5
Income group 5	1.6	0	0.8
Total	**2.1**	**0.5**	**1.3**

Table 13. Percentage distribution of Adult current smokers by age group and type of tobacco use

Currently smoking	Age groups						
	15-24	25-34	35-44	45-54	55-64	>65	
Cigarette	62.8%	8.3%	12.5%	13.2%	3.5%	0%	100%
Cheroot	3.3%	13.8%	20.2%	28.9%	16.2%	17.6%	100%
Cigar	4.0%	20.0%	16.0%	25.3%	17.3%	17.3%	100%
Hand rolled cheroot	0%	1.5%	11.4%	31.9%	28.4%	26.8%	100%

Table 14. Percentage distribution of Adult current chewing betel quid with raw tobacco by sex, urban rural residence, education level and income group.

	Male	**Female**	**Total**
Urban	21.4	3.7	12.2
Rural	29.9	4.7	17.6
Illiterate	23.6	3.4	8.5
Primary school	29.2	4.2	16.5
Middle school	30.1	6.3	20.2
High school	20.9	4.7	14.4
University	26.3	3	13.6
Income group 1 (lowest)	28.3	3.3	14.5
Income group 2	26.6	4.7	16
Income group 3	28.4	3.6	16.3
Income group 4	30.1	5.5	18.3
Income group 5	25.1	5.3	15.6
Total	**27.8**	**4.4**	**16.2**

Table 15. Percentage distribution of Adult current chewing raw tobacco by sex, urban rural residence, education level and income group.

	Male	Female	Total
Urban	0	0	0
Rural	0.8	0	0.4
Illiterate	1.9	0	0.5
Primary school	1	0	0.5
Middle school	0	0	0
High school	0	0	0
University	0	0	0
Income group 1 (lowest)	0.2	0	0.1
Income group 2	2.4	0	1.2
Income group 3	0	0	0
Income group 4	0	0	0
Income group 5	0.6	0	0.3
Total	**0.6**	**0**	**0.3**

Table 16. Percentage distribution of Adult current daily smokers by sex, urban rural residence, education level and income group.

	Male	Female	Total
Urban	30.1	8.9	19.1
Rural	33.5	16.4	25.1
Illiterate	48.1	42.6	44.2
Primary school	38.6	16.4	27.4
Middle school	26.2	2.4	16.2
High school	26.8	1.7	16.7
University	12.6	0	5.7
Income group 1 (lowest)	41.8	20.3	29.9
Income group 2	32.2	13.5	23.2
Income group 3	29.6	13.3	21.7
Income group 4	33.6	14.0	24.2
Income group 5	29.5	11.7	21.0
Total	**32.6**	**14.4**	**23.6**

Table 17. Percentage distribution of Adult current daily smokers by age group and sex

	Male	Female	Total
15-24 years	7.4	0	3.5
25-34 years	23.8	1.7	12.5
35-44 years	33.0	9.6	21.4
45-54 years	50.0	30.0	40.9
55-64 years	48.6	34.7	41.5
>65 years	50.8	39.5	45.8
Total	**32.6**	**14.4**	**23.6**

Table 18. Percentage distribution of Adult current daily smokeless tobacco users by sex, urban rural residence, education level and income group.

	Male	Female	Total
Urban	23.3	4.3	13.4
Rural	29.6	4.4	17.3
Illiterate	22.6	2.8	7.8
Primary school	29.6	4.1	16.6
Middle school	30.0	6.7	20.3
High school	20.2	5	14.1
University	29.3	2	14.4
Income group 1 (lowest)	29.2	3.3	14.9
Income group 2	27.2	4.9	16.4
Income group 3	27.8	3.2	15.8
Income group 4	29.4	5.7	18
Income group 5	26.2	4.7	16
Total	**28.0**	**4.4**	**16.3**

Table 19. Percentage distribution of Adult current daily smokeless tobacco users by age group and sex

	Male	Female	Total
15-24 years	11.8	2.1	6.6
25-34 years	33.2	5.3	18.9
35-44 years	40.6	5.9	23.4
45-54 years	29.7	3.1	17.7
55-64 years	25.7	8.2	16.8
>65 years	27.9	2.7	16.8
Total	**28.0**	**4.4**	**16.3**

Table 20. Percentage distribution of Adult current daily tobacco users by sex, urban rural residence, education level and income group.

	Male	Female	Total
Urban	46.9	13.0	29.3
Rural	53.9	20.3	37.5
Illiterate	66.0	44.8	50.1
Primary school	60.4	20.4	40.1
Middle school	45.0	8.7	29.9
High school	38.6	6.4	25.6
University	35.9	2.0	17.4
Income group 1 (lowest)	60.6	23.4	40.0
Income group 2	50.1	18.1	34.6
Income group 3	52.0	15.6	34.3
Income group 4	53.4	19.4	37.1
Income group 5	48.5	15.8	32.9
Total	**52.2**	**18.3**	**35.4**

Table 21. Percentage distribution of Adult current non-daily smokers by sex, urban rural residence, education level and income group.

	Male	Female	Total
Urban	10.1	1.4	5.6
Rural	5.9	1.8	3.9
Illiterate	6.6	5.3	5.6
Primary school	6.1	1.7	3.9
Middle school	6.9	0.8	4.3
High school	8.4	0	5.0
University	10.8	0	4.9
Income group 1 (lowest)	5.9	2.1	2.8
Income group 2	9.5	2.2	5.9
Income group 3	6.6	1.7	4.2
Income group 4	6.7	1.6	4.3
Income group 5	7.0	1.2	4.0
Total	**6.9**	**1.7**	**4.3**

Table 22. Percentage distribution of Adult current non-daily smokers by age group and sex

	Male	Female	Total
15-24 years	12.6	0	5.9
25-34 years	3.9	0	1.9
35-44 years	6.7	0.9	3.8
45-54 years	7.1	2.9	5.2
55-64 years	2.9	4.3	3.6
>65 years	5.7	6.1	5.9
Total	**6.9**	**1.7**	**4.3**

Table 23. Percentage distribution of Adult current non-daily (occasional)smokeless tobacco users by sex, urban rural residence, education level and income group.

	Male	Female	Total
Urban	3.2	0.9	2.0
Rural	4.5	0.4	2.5
Illiterate	3.8	0.9	1.6
Primary school	4.4	0.5	2.4
Middle school	4.4	0.4	2.7
High school	3.9	0	2.3
University	2.4	0	1.9
Income group 1 (lowest)	1.7	0.6	1.1
Income group 2	7.0	0.2	3.7
Income group 3	4.8	1.1	3.0
Income group 4	4.2	0.4	2.4
Income group 5	3.4	0.5	2.0
Total	**4.2**	**0.5**	**2.4**

Table 22. Percentage distribution of Adult current non-daily (occasional) smokeless users by age group and sex

	Male	Female	Total
15-24 years	3.2	0.3	1.7
25-34 years	4.4	0.7	2.5
35-44 years	5.2	0.0	2.6
45-54 years	5.2	0.7	3.1
55-64 years	2.9	0.0	1.4
>65 years	3.3	2.3	2.9
Total	**4.2**	**0.5**	**2.4**

Table 23. Percentage distribution of Adult current non-daily tobacco users by sex, urban rural residence, education level and income group.

	Male	Female	Total
Urban	12.4	2.3	7.2
Rural	9.4	2.0	5.8
Illiterate	6.7	2.5	7.1
Primary school	15.5	2.4	5.7
Middle school	10.6	2.7	6.6
High school	9.9	1.9	6.5
University	9.0	1.5	6.8
Income group 1 (lowest)	10.4	6.0	4.4
Income group 2	9.5	2.1	9.1
Income group 3	10.4	1.2	6.8
Income group 4	10.9	0	6.1
Income group 5	13.2	1.5	5.4
Total	**10.2**	**2.1**	**6.2**

Table 24. Percentage distribution of frequency of tobacco use among current smokers by sex, urban rural residence, education level and income group

	More than 5 times	1-5 times
Male	21.2	78.9
Female	11.0	89.0
Urban	27.0	86.8
Rural	16.0	84.1
Illiterate	4.8	95.2
Primary school	16.9	83.1
Middle school	24.0	76.0
High school	22.4	77.6
University	44.8	55.2
Income group 1 (lowest)	13.2	86.8
Income group 2	15.7	84.3
Income group 3	15.9	84.1
Income group 4	18.3	81.7
Income group 5	28.1	71.9
Total	**18.5**	**81.5**

Table 25. Percentage distribution of expenditure of tobacco per month among current users by type of tobacco use, MSTUPS, 2004

Type of tobacco use	< 500 Kyats	500-1999 Kyats	2000-3999 Kyats	>4000 Kyats	Total	N
Cigarette	13.9	61.3	11.7	13.1	100%	137
Cheroot	40.3	58.1	1.6	0	100%	883
Cigar	21.9	76.7	1.4	0	100%	73
Hand rolled cheroot	62.4	35.3	1.8	0.6	100%	380
Chewing raw tobacco	47.1	52.9	0	0	100%	17
Betel quid with raw tobacco	20.6	61	15.1	3.3	100%	941
Betel quid with raw and modified tobacco	22.2	22.2	44.4	11.1	100%	9
Total percentage	34.0	56.4	7.5	2.0	100%	100

Table 26. Reasons for thinking of stopping or cutting down tobacco use

Sr.	Reasons	Percentage
1.	Long term health effects	79.9
2.	Economic impact	10.6
3.	Suggestion from health personnel	2.7
4.	Spark disturb the work	2.4
5.	Pressure from friends and families	0.4
6.	Cosmetic effects	0.3
7.	Advice from teachers	0.2

Table 27. Percentage distribution of knowledge of effects of tobacco use

Sr.	Knowledge of tobacco use	Percentage
1.	Think that tobacco use is harmful	90.8
2.	Know health effects of smoking	77.6
	- Lung diseases	67.3
	- Heart disease	21.3
	- Stroke	12.2
	- Respiratory disease	25.3
	- Cancer	10.7
	- Problem with teeth and gum	5.5
	- Wrinkled skin	6.7
	- Stained nails	4.2
	- Impotency	2.9
	- Easily fatigue	37.9
	- Other diseases	4.7
3.	Exposure to smoke is harmful	85.6
4.	Spending money to buy tobacco products make people poorer	94

Table 24. Percentage distribution of perception of Tobacco use

Sr.	Perception of tobacco use	Percentage
1.	Smoking relieve loneliness	35.6
2.	Smoking is buying of disease	38.9
3.	Smoking is a kind of relaxation	12.0
4.	Smoking as a fun	7.0
5.	Smoking is a outlet of stress	3.5
6.	Smoking makes good idea	3.4
7.	Smoking means foolish/ weakness	3.2
8.	Smoking is a sign of selfish behaviour	1.7
9.	Smoking makes manly/adult	1.3
10.	Other view of smoking	6.9

Table 25. Percentage distribution of perception on Tobacco Industry

Sr.	Perception of Tobacco Industry	Percentage
1.	Provide jobs	15.7
2.	Helps sports/ art and other sector	1.0
3.	Provide revenue for government	5.7
4.	Cause weakness in health and sports of youth	13.1
5.	Don't know about Tobacco Industry	47.7
6.	Nothing to say because being other business	25.7
7.	Other opinion on Tobacco Industry	1.8

Table 26. Percentage distribution of support for measures for tobacco control

Sr.	Measures for tobacco control	Percentage
1.	Public place as no smoking areas	72.6
	- Public transport areas as no smoking areas	34.8
	- Hospitals as no smoking areas	39.6
	- Nearby places of hospitals as no smoking areas	23.6
	- Schools as no smoking areas	29.3
	- Nearby places of schools as no smoking areas	19.3
	- Cinema hall as no smoking areas	25.9
	- Other places as no smoking areas	5.3
2	Ban advertisements of cigarette can reduce tobacco use	56.9
3.	Prohibit selling of cigarette to minors	41.7
4.	Raise price of cigarette and other tobacco products by increasing taxation can reduce tobacco use	20.8

Annex 3

Questionnaire for Prévalence Study 2004

1	**General Information**	
1.1	Geographical location 1. Hinthada 2. Pakkuku	☐
1.2	Urban / Rural status 1. Urban 2. Rural	☐
1.3	Cluster No.	☐
1.4	Number of persons in family (those sharing a kitchen, excluding servants)	☐
1.5	Age (completed years)	☐☐
1.6	Sex 1. Male 2. Female	☐
1.7	Marital Status 1. Unmarried 2. Married 3. Divorced 4. Window /widower	☐
1.8	Educational level 1. Illiterate 2. Able to read and write 3. Primary school passed 4. Middle School passed 5. High School passed 6. University graduate	☐
1.9	Religion 1. Buddhist 2. Christian 3. Muslim 4. Hindu 5. Others (specify..... ....)	☐

1.10	Ethnicity 1. Burmese 2. National Races (specify.....) 3. Others (specify.....)	☐
1.11	Family's Monthly income (Calculate for daily wage earners) (Amount in local currency).	☐☐☐☐☐
2.	**Tobacco Use Status**	
2.1	Have you ever used tobacco products? Yes 1/No 0	☐
2.2	Have you ever used betel quid (without tobacco)	☐
	or any other related product? Yes 1/No 0	
	If Yes to 2.1 or 2.2 or both, Go to 3.	
	If No to 2.1 or 2.2, continue with 2.3.	
2.3	Reasons for not using tobacco products.	☐
	(Write the codes in order of importance for the responder)	
	1= Long term health effects; 2=Short term health and cosmetic effects;	
	3= Economic reasons; 4=Moral / religious reasons;	
	5= Pressure from family or friends; 6=Not good to use; 7=Others (specify.....)	

3.A	**Details of Tobacco Use (Smoking)** **Please give the details related to use of each type of tobacco or related products**						
		Cigarettes	**Cheroots**	**Cigars**	**Pipes**	**Hand-rolled**	**Others**
3.A.1	Which of these products have you ever used? (1 Y/ 0 N)						
3.A.2	Have you ever used any of these products for > 3 months? (1 Y/ 0 N)						
3.A.3	Are you currently using any of these products for > 3 months? (1 Y/ 0 N)						
3.A.4	How often do you use these products now? (Daily 1/ less than daily 2) (In case of ex-users please write last frequency)						
3.A.5	At what age did you first use these products?						
3.A.6	At what age did you start using these products everyday?						
3.A.7	How many times in a day do you use these substances?(For daily users) (In case of ex-users , please write last frequency)						
3.A.8	If you have stopped using any of these products, what was your age when you stopped its use?						
3.A.9	What has been the duration of use of these products? (In years)						
3.A.10	How much do you spend at present on these products per month?(in local currency)						

3.B	**Details of Tobacco Use (Smokeless Tobacco Products and Other Products)** **Please give the details related to use of each type of tobacco or related products**			
		Chewing of tobacco	**Betel Quid with tobacco**	**Others**
3.1	**Which of these products have you ever used? (1 Y/ 0 N)**			
3.2	Have you ever used any of these products daily for > 3 months? (1 Y/ 0 N)			
3.3	Have you ever used any of these products for > 3 months? (1 Y/ 0 N)			
3.4	Are you currently using any of these products for > 3 months? (1 Y/ 0 N)			
3.5	How often do you use these products now? (Daily 1/ less than daily 2/ not at all 3) (In case of ex-users please write last frequency)			
3.6	At what age did you first use these products?			
3.7	At what age did you start using these products everyday?			
3.8	How many times in a day do you use these substances? (For daily users) In case of ex-users , please write last frequency)			
3.9	How many times in a month do you use these substances? (For occasional & experimental users)			
3.10	If you have stopped using any of these products, what was your age when you stopped its use?			
3.11	What has been the duration of use of these products? (In years) (Whether currently in use or stopped)			
3.12	How much do you spend at present on these products per month?(in local currency)			

4.	**Chronology of Tobacco Use**			
4.1	If tobacco was used in more than one modality, give the chronological order of starting these modalities			Smoking Products 01= cigarettes 02= cheroots 03= cigars 04= pipes 05= hand-rolled 06=others smokeless products 11= chewing tobacco 12= betel quid with tobacco related products (non-tobacco) 21 = betel without tobacco 22 = betel nut
4.2	If you have ever changed your habit of tobacco or related product use, please indicate the type of change. (Give all the habits if substances are used in ore than one form) (Use code from item 4.1)		Year of Change	Reason (s) for Change
	From	To		

5	Quit Status	
5.1	Have you ever thought of giving up or cutting down tobacco use?	1= No 2= Thought previously 3= Thinking now 4= Quit Completely

Thought previously/ thinking now/ quit

No

To Q 6,7,8,9

5.2	What made you think of stoppingp or cutting down tobacco use?	1= Long term health effects 2= Short term cosmetic effects 3= Economic impact to self/ family 4= Moral or religious reasons 5= Negative perception of tobacco use foolish/weak 6= Other (specify)
5.3	Have you ever made any attempts to give-up or cutting-down?	Yes 1/ No 2
5.4	If so, approximately how many times have you tried to stop? During last 12 months (Number of attempts) Before last 12 months (Number of attempts)	Only from "Y" for Q 5.3
5.5	How did you try to quit? (i.e, What method did you use?) Consider latest attempt if there has been more than one attempt	Only from "Y" for Q 5.3 1= Self-determination 2= Support of family or friends only 3= Counseling with health personnel 4= Others (specify)
5.6	Have you been able to quit tobacco use for a period of six months or more?	Only from "Y" for Q 5.3 Yes 1/ No 2
5.7	What method/s did you use for your successful attempts?	Only from "Y" for Q 5.6 1= Self-determination 2= Support of family or friends only

		3= Counseling with health personnel 4= Others (specify
5.8	What method/s did you use for your unsuccessful attempts?	Only from "N" for Q 5.6 1= Self-determination 2= Support of family or friends only 3= Counseling with health personnel 4= Others (specify)
6	Does your father or mother use tobacco?	
6.1	Father	1= Never used tobacco 2= Used to smoke but stopped 3= Used smokeless tobacco but stopped 4= Smokes now 5=Uses smokeless tobacco now 6= Uses both smoked and smokeless
6.2	Mother	1= Never used tobacco 2= Used to smoke but stopped 3= Used smokeless tobacco but stopped 4= Smokes now 5=Uses smokeless tobacco now 6= Uses both smoked and smokeless

7	Knowledge of effects of tobacco use	
7.1	Do you think that tobacco use if harmful?	Yes 1/ No 2/ Don't know 3
7.2	Do you any health effects of tobacco?	Yes 1/ No 2 If yes, multiple selections are allowed 1= Heart disease 2= Stroke 3= Respiratory disease 4= Cancer 5=Problems with teeth/gums 6= Wrinkled skin 7= stained nails 8= Impotency
7.3	Do you think being exposed to smoke from tobacco smoke by others is (a) Harmful to adults? (b) Harmful to children?	 Yes 1/ No 2/ Don't know 3 Yes 1/ No 2/ Don't know 3
7.4	Do you think money spent to buy tobacco products make people poorer?	Yes 1/ No 2/ Don't know 3

8.	Perceptions of Tobacco Use and the Tobacco Industry	
8.1	What do you think of tobacco use ?	(Multiple selections up to 3 are allowed) 1= Fun 2= Manly/ adult 3= Relaxing 4= Foolish / Weak 5= Immoral/sinful 6= Others
8.2	What do you think of the tobacco industry?	(Multiple selections up to 3 are allowed) 1= Provides jobs