

**USE OF TOBACCO PRODUCTS BY THE FARMERS OF
SELECTED AREAS OF RANGAMATI
BY**

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USE OF TOBACCO PRODUCTS BY THE FARMERS OF SELECTED AREAS OF RANGAMATI

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CERTIFICATE

This is to certify that the thesis entitled, “**USE OF TOBACCO PRODUCTS BY THE FARMERS OF SELECTED AREAS OF RANGAMATI**” submitted to the Department of Agricultural Extension and Information System, Faculty of Agriculture, Sher-e-Bangla Agricultural University, Dhaka. In partial fulfillment of the requirements for the degree of MASTER OF SCIENCE (M.S.) in Agricultural Extension and Information System, embodies the result of a piece of *bona-fide* research work carried out by **MD. ASIF EMTEAS**, Registration No. **07-2489**, under my supervision and guidance. No part of the thesis has been submitted for any other degree or diploma.

I further certify that such help or source of information, as has been availed of during the course of this investigation has been duly acknowledged.

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ABSTRACT

The main purpose of this study was to have an understanding on family tobacco product using behavior of the farmer. The relationship between selected characteristics of the farmers (age, education, annual income, peer groups tobacco product using behavior, family religiousness, awareness on harmful effect of using tobacco product, organizational participation) and their family tobacco product using behavior was also explored. Data were obtained from 103 farmers of Dewanpara and Champatoli villages of Ghagra union of Kawkhali upazila under Rangamati district, with the help of an interview schedule. Appropriate scales were developed in order to measure the concerned variables. Correlation co-efficient was computed to explore the relationship between the concerned variables. An overwhelming majority (84.5 percent) of the respondent farmers had medium to high family tobacco product using behavior compared to 15.5 percent low family tobacco product using behavior. The findings also revealed that age and organizational participation of the farmers had significant positive relationship with their family tobacco product using behavior. Education and awareness on harmful effects of using tobacco product of the farmers had significant negative relationship with their family tobacco product using behavior. Annual income, peer groups tobacco product using behavior and family religiousness of the farmer had no significant relationship with their family tobacco product using behavior.

CHAPTER 1

INTRODUCTION

1.1 General Background

Bangladesh is one of the largest tobacco consuming countries in the world. Tobacco-use results in both health and economic costs that is large and growing. Smoking kills one in 10 people worldwide; one in two long-term smokers dies from the habit. By 2030, smoking is expected to be the single biggest cause of death worldwide, resulting in one in six deaths and killing 10 million people. Apart from premature mortality, prolonged smoking also causes considerable disability. Results of research indicate that cigarette smoking causes cancer of the lung, larynx, oral cavity, and esophagus and is significantly associated with pancreas, urinary bladder, stomach, and kidney cancers in both men and women (Choudhury *et al.*, 2007).

About one-third of the global population aged over 15 years (1.1 billion people) are smokers. Of these smokers, 800 million are in developing countries. Existing data suggest that, globally, men are more likely to smoke than women (47% vs. 12%). Men from the developing world smoke more in proportion (48%) than men from the developed world (42%). However, the pattern is opposite for women 7% in the developing world versus 24% in the developed world (Choudhury *et al.*, 2007).

Although the impact of tobacco-related diseases and death had until recently been a problem primarily for developed countries, smoking has, to some extent, been brought under control through tougher legislation and increasing awareness in the developed world.

Transnational tobacco companies are now aggressively targeting developing countries, including Bangladesh, where health information is less well-known, to

promote smoking. The World Health Organization(WHO) estimates that by the mid-2020s, about 85% of the world's smokers will be in the poorer countries, and seven in every 10 tobacco related deaths will be in these countries. Bangladesh is already experiencing an increasing number of cancer cases; there was a 10-fold increase of cases between 1960 and 1980. Part of the reason for this increase could also be the availability of better diagnosis and/or increased contact with healthcare providers. However, the Bangladesh Cancer Society estimates that a significant proportion of all cancers in Bangladesh are related to tobacco. A study in Dhaka concluded that tobacco consumption either through chewing or smoking was an important factor in the development of oral cancer. Smoking has also been named as an important risk factor for heart disease among male patients in their 40s and 50s in Bangladesh (Barkat *et al.*, 2008).

Tobacco use by the youth is a growing problem in Bangladesh. In 2007, 6.9% of in-school youth aged 13 through 15 years reported to be involved in the use of some tobacco product, including 2.0% who were prone to smoking (Choudhury *et al.*, 2007).

Overall cigarette and bidi consumption have been rising in Bangladesh in recent years, with cigarette smoking rising by over 40% between 1997 and 2010 and bidi consumption rising by over 80% during the same period. While its population has been growing rapidly, the increases in consumption have outpaced population growth so that per capita consumption of both grew sharply over this period (Choudhury *et al.*, 2007).

Given the high levels of tobacco use, Bangladesh faces considerable health and economic consequences from tobacco. Over 57,000 deaths are attributed to tobacco use each year, about one in six of all deaths among Bangladeshis of 30 years and older. In 2004, nearly 51 billion taka was spent to treat the diseases caused by smoking, including 5.8 billion taka spent to treat non-smokers exposed to tobacco

smoke. In addition, smoking harms the economy, with a conservative estimate that smoking-attributable lost productivity was 59 billion taka in 2004. Together, the economic costs of tobacco use in Bangladesh accounted for over 3% of GDP in 2004(web.1).

Tobacco use is a widespread phenomenon in Bangladesh. According to the World Health Organisation (WHO) reported on the Global Tobacco Epidemic 2008, nearly two-thirds of the world's smokers live in 10 countries including Bangladesh. Two in five people aged 15 years or more use tobacco in one way or another. A WHO study estimated that, in 2004, 57000 people lost their life prematurely as a result of tobacco use and 382000 people became disabled. It is well established that the net loss to the economy due to tobacco in Bangladesh is much higher than revenues earned from tobacco.

Addressing these issues, the fight against tobacco has been taken for many years. Finally, Bangladesh made strides in the fight against tobacco. The long awaited bill named Smoking and Tobacco Product Usage (Control) Bill 2013 has already been passed in the Parliament, reviewed and waiting for final signature. This was a historical feat. However, challenges are still there. Experts identified sensitising people to comply with law and help establish and strengthen support services to quit tobacco products as two major challenges.

Even with the passed bill, there was shortcoming like keeping provision of smoking zone in public places which is contrary to the WHO Framework Convention on Tobacco Control (FCTC) that Bangladesh ratified. Keeping this zone in public places will pollute the entire environment that expose people at risk of passive smoking hazards.

Even with the flawless law in place, implementation of law is the biggest challenge. Most of the people are not aware about the law, about fatal consequences and the

suitable ways to quit smoking or using smoke free tobacco like betel leaves. “There is a need of strong nationwide campaign specially addressing people living in rural area on dangers of tobacco use and laws” says Iqbal Masud, one of law drafting members. As tobacco smoking causes serious addiction, it is not always easy to quit. Many people want to quit, but they just cannot find a way to control over nicotine. There are strong motivational counseling and drugs that can help quit smoking which is virtually absent in Bangladesh. One of the main behavioral health risks for a host of chronic illnesses is the use of tobacco and related products.

Awareness is the key to fight tobacco. Interventions to reduce or quit smoking should be directed towards the poor, young, and people with lower education, and women should be targeted for prevention of the use of smokeless tobacco products. Along with law in place, it is necessary to ensure that people are prepared to help support full implementation of law and they find it easier to overcome addiction with supportive services available in their place (Cohen *et al.*, 1981).

Tobacco smoking and other forms of tobacco use impose a large and growing public health burden globally and particularly in Bangladesh. Globally, tobacco use currently causes 5.4 million premature deaths each year, and current trends predict that one billion people will die from tobacco use in the 21st century. Tobacco use imposes considerable economic costs, both on account of the health care expenses incurred to treat the diseases caused by tobacco use and from the lost productivity resulting from tobacco-related illnesses and premature death. Bangladesh is one of the largest tobacco consuming countries in the world. Applying prevalence figures from the 2009 Global Adult Tobacco survey to the 2012 population, it is estimated that over 46.3 million persons aged 15 and older consume tobacco products, including over 43% of them and nearly 29% of women. Tobacco use in Bangladesh is split among a variety of different products, with 23% of adults smoking tobacco, and 27.2% consuming smokeless tobacco products. Men are much more likely to smoke than women, with smoking prevalence among men at nearly 45%, as

compared to 1.5% among women. Most female smokers smoke bidis, while men are more likely to smoke manufactured cigarettes, although many consume bidis. In contrast, smokeless tobacco use rates among women are slightly higher than they are among men. In addition, a significant number of Bangladeshi youth are taking up tobacco use, with over 9% of boys and 5% of girls' aged between 13 through 15 are consuming some tobacco product.(Hossain *et al.*, 2012).

Bangladesh is one of the largest tobacco consuming countries in the world. Tobacco is consumed in many forms in Bangladesh, including smoking of cigarettes, bidis, water pipe (hookah), and chewing (often with betel leaves and nuts, as jarda). Cigarettes and bidis account for most of smoked tobacco consumption. Data from various surveys suggest that smoking prevalence has been relatively flat or rising in Bangladesh since the mid-1990s. Initiation of tobacco use occurs at relatively older ages in Bangladesh, but a large number of Bangladeshi youth have tried smoking and many consume other tobacco products. The growing recognition of the health and economic consequences of tobacco use have led many to call for the adoption and implementation of strong tobacco control measures, prompting some policy makers to introduce a variety of legislation. To date, however, these efforts have been met with strong opposition from the tobacco industry and existing policies are relatively weak. While the country has signed and ratified the WHO (World Health Organization) Framework Convention on Tobacco Control, it does not yet meet most of the obligations and guidelines of the treaty. Smoke-free policies are limited to health care and educational (excluding university) facilities and do not cover bars, restaurants, government buildings, transport, indoor workplaces and other indoor public places. Tobacco advertising is banned on television and radio, in local magazines and newspapers, and on billboards, but is allowed at the point of sale. Tobacco company sponsorship of tournaments is banned, but promotional discounts and distribution of free samples are allowed. Health warnings are required on cigarette and bidi packages, but do not include graphic images, and no warnings are required on smokeless tobacco

products. Tobacco excise taxes have increased over time, but tobacco products have become more affordable over time and significant tax increases have not been adopted to curb tobacco use.

1.2 Statement of the Problem

Use of tobacco products is very common in Bangladesh including all districts. In view of the preceding discussion, the researcher undertook this problem entitled **“USE OF TOBACCO PRODUCTS BY THE FARMERS OF SELECTED AREAS OF RANGAMATI”**. This study also tried to explore the relationship of some selected characteristics of the farmers such as age, education, family annual income, peer groups tobacco product using behavior, family religiousness, awareness on harmful effect of using tobacco product, organizational participation with family tobacco product using behavior. The purpose of the study was to answer the following research questions:

- (i) To what extent tobacco products are being used by the farmers?
- (ii) Which characteristics of the farmers are related to their use of tobacco products?

1.3 Objectives of the Study

The following specific objectives were formulated in order to give proper direction of the study.

1. To ascertain family tobacco product using behavior by the farmers
2. To determine and describe following selected characteristics of the farmers:
 - i) Age
 - ii) Education
 - iii) Family annual income
 - iv) Peer groups tobacco product using behavior

- v) Family religiousness
- vi) Awareness on harmful effect of tobacco use
- vii) Organizational participation

3. To explore the relationships between the selected characteristics of the farmers with their family tobacco product using behavior.

1.4 Justification of the Study

Bangladesh is one of the largest tobacco consuming countries in the world. Over 58% of men and 29% of women use some form of tobacco, whether smoked (both cigarettes and bidis) or smokeless. In 2012, an estimated 46.3 million adults used some form of tobacco product, smoked or smokeless. Most smokers are male, 28.3% of adult men smoke manufactured cigarettes and 21.4% smoke bidis. In contrast, smokeless tobacco use is substantial across both genders, with 26.4% of men and 27.9% of women using some form of smokeless tobacco. Most smokeless tobacco use is of betel quid with tobacco (zarda) though other forms of smokeless tobacco products including gul and sadapata, are also commonly used (Barakat *et al.*, 2012). However, there is a major weakness concerning tobacco cultivation in the country. The previous law offered the possibility of loans on easy terms for tobacco farmers willing to switch to alternative crops. But the Government of Bangladesh didn't implement this section within the time period mentioned. The new tobacco control law is even weaker in this respect; it doesn't give any constructive direction about regulating tobacco cultivation. The Government has amended the law to curb the growing use of tobacco in Bangladesh. Some study showed that more than 43 per cent adults either smoke or chew tobacco. Tobacco is also linked to about 57,000 deaths in Bangladesh with additional over 350,000 people suffering from various ailments, according to WHO (World Health Organisation). And the costs of treatment of tobacco-related illness are double than the revenue Government earns from the tobacco industry (web.2).

In view of the above discussion, a passionate feeling and a felt need was developed to conduct this sort of research about uses of tobacco products. The researcher was,

therefore, interested to undertake this research entitled “**USE OF TOBACCO PRODUCTS BY THE FARMERS OF SELECTED AREAS OF RANGAMATI**”.

1.5 Scope and Limitations of the Study

The findings of the study will be applicable to Dewanpara and Champatoli of Ghagra union in Kawkhali upazila of Rangamati district in particular. However, the findings may also be applicable to other areas of Bangladesh where the physical, socio-economic and cultural conditions do not differ much with those of the study area. The purpose of the study was to have an understanding about the use of tobacco products by the farmers. But considering the time and money the study was conducted with the following limitations:

1. The study was confined to Dewanpara and Champatoli of Ghagra union in Kawkhaliupazila of Rangamati districts. The characteristics of the farmers are many and varied. Only 7 characteristics were selected for investigation in the study.
2. Population of the study was limited.
3. The investigator was dependent on the data furnished by the selected farmers during their interview.
4. The facts and figures collected by the investigator applied to the situation prevailing during 01 October, 2014 to 06 February, 2015.

1.6 Assumptions

An assumption is “the supposition that an apparent fact or principle is true in the light of available evidence” (Good, 1945). The following assumptions were made in conducting the study:

- i) The respondents included in the sample of the study were able to provide their opinions and were competent enough to satisfy the queries.
- ii) The information furnished by the respondents was reliable.
- iii) Views and opinions furnished by the farmers included in the sample were the representatives of the whole population of the study area.
- iv) The collected data were reliable because the researcher who acted as interviewer was well adjusted to the social environment of the study area.

1.7 Definitions of Terms

Definitions of some important terms used in this study are given below:

Tobacco products: The term "tobacco product" means any product made or derived from tobacco that is intended for human consumption, including any component, part, or accessory of a tobacco product. This includes, among other products, cigarettes, cigarette tobacco, roll-your-own tobacco, and smokeless tobacco.

Bidi: A bidi is a thin, cigarette filled with flake and wrapped leaf tied with a string at one end.

Zarda: Tobacco leaves are broken up and boiled with lime and spices. The mixture is dried and colored with vegetable dyes, then mixed with finely chopped areca nuts is called zarda.

Gul: Gul is an oral tobacco powder which is rubbed over the gum and teeth.

Hukkah: A hookah also known as a waterpipe, is a single or multi-stemmed instrument for vaporizing and smoking flavored tobacco in which the vapor or smoke is passed through a water basin often glass-based before inhalation.

Cigarettes: A cigarette is a small cylinder of finely cut tobacco leaves rolled in thin paper for smoking. The cigarette is ignited at one end and allowed to smoulder; its smoke is inhaled from the other end, which is held in or to the mouth; in some cases, a cigarette holder may be used, as well. Most modern manufactured cigarettes are filtered and also include reconstituted tobacco and other additives.

Age: Age of the respondent was defined as the period of time from his birth to the time of interview.

Education: Education referred to the number of years of schooling completed by a respondent.

Family annual income: It defined as the total earnings of an individual and the members of his family both from agriculture and other sources (business, service and other sources).

Peer groups tobacco product using behavior: It referred to the ways and means gained by the peer groups of a farmer on using different tobacco product from different sources and also through their experiences of using tobacco product

Family religiousness:

It referred having or showing belief in and reverence for God or a deity. The terms religiousness/religiosity are used interchangeably but often defined as an individual's conviction, devotion, and veneration towards a divinity. However, in its most comprehensive use, religiosity can encapsulate all dimensions of religion, yet the concept can also be used in a narrow sense to denote an extreme view and over dedication to religious rituals and traditions. This rigid form of religiosity in essence is often viewed as a negative side of the religious experience, it can be typified by an over involvement in religious practices which are deemed to be beyond the social norms of one's faith.

Awareness on harmful effect of tobacco use: Awareness is the ability to perceive, to feel, or to be conscious of events, objects, thoughts, emotions, or sensory patterns. In this level of consciousness, sense data can be confirmed by an observer without necessarily implying understanding. More broadly, it is the state or quality of being aware of something. In biological psychology, awareness is defined as a human's or an animal's perception and cognitive reaction to a condition or event. In this study, it was related with harmful effects of tobacco use.

Organizational participation: It was defined as an association of two or more persons which have a at least one face to face meeting in a year. Participation in an organization refers to his taking part in the organization as ordinary member, executive committee member, or officer.

Family tobacco product using behavior: It referred to the courses of action or behavior gained by the family members on using different tobacco products from different sources and also through their experiences of using tobacco product.

Population: A population is a complete set of items that share at least one property in common that is the subject of a statistical analysis.

Sample: A data sample is a set of data collected and/or selected from a statistical population by a defined procedure.

Validity: In science and statistics, validity is the extent to which a concept, conclusion or measurement is well-founded and corresponds accurately to the real world. The word "valid" is derived from the Latin validus, meaning strong.

CHAPTER 2

REVIEW OF LITERATURE

The purpose of this Chapter is to review literature having relevance to the present study. The purpose of this study was to ascertain the use of tobacco products by the farmers and explore their relationship with the selected characteristics. Very few works had been done in Bangladesh in this connection. The researcher, therefore, made an exhaustive effort to review researches directly or indirectly related to the present study. The available reviews are presented in the following sections:

Section I: Review on studies relating to use of tobacco products

Section II: Review on studies relating to relationships of selected characteristics of the farmers with their family tobacco product using behavior

Section III: Conceptual model of the study

2.1 Use of Tobacco Products in General

Consumption of tobacco both smoking and chewing has been a long-standing tradition in Bangladeshi households (Cohen, 1981)

Tobacco products are used in many ways. Bidis consist of sun-dried and cured tobacco flakes hand-rolled in a rectangular piece of paper or tobacco leaf; these are generally very inexpensive costing only a fraction of the price of cigarettes and deliver large amounts of tar and nicotine. Cigarettes of local producers generally also contain high tar and nicotine. With the hookah, which is rare, tobacco mixed with molasses is burnt, and the smoke passed through water in a specially-devised tool before inhalation. The smokeless forms of tobacco commonly consumed include chewing tobacco either as shada or zarda; these are commonly consumed with sliced betel or areca nut and rolled in the Piper betel vine or paan leaf with slaked lime. Whatever the form of tobacco consumption either chewable or smoke, results of studies have shown their health hazards to be similar (Bolinder *et al.*, 1992).

Chewing tobacco is placed between the cheek and lower lip, and chewed to facilitate the release of nicotine. Chewing tobacco typically comes in the form of either loose leaf “chew”, plug, or twist. Loose leaf chewing tobacco is made from cigar tobacco leaves that are air cured, sweetened, cut and loosely packed to form small strips of shredded tobacco. Moist plug is made by mixing sweet tobacco leaves (burley, oriental, and cigar tobaccos), wrapping and compressing them into a cake or “plug” form. Twist chewing tobacco is made from cured tobacco leaves that are often flavoured and twisted together to resemble rope (Wyckham, 1999).

Reddy and Gupta (2004) reported that smokeless tobacco refers to any type of tobacco that is consumed without heating or burning, and can be used nasally or orally (such as chewing, sucking, or applying to the teeth and gums).

Snus is a form of moist snuff. It is subject to humidifying agents and kept cold to avoid fermentation. This processing method reduces the formation of nitrates and nitrosamines and is therefore much lower in TSNAs compared to other forms of smokeless tobacco (Savitz *et al.*, 2006).

Tobacco and/or paan are quite often the only items, which are offered to visitors, or when meeting with a friend. Tobacco in chewable form is a very common household consumption item and is always offered to a visitor—male or female. A Bangladeshi household without tobacco in some form or other is hard to imagine (Choudhury *et al.*, 2007).

Barkat *et al.* (2008) reported that health and illness is directly being affected among tobacco cultivators through increasing smoking and leaf chewing practices as well as through cultivation and drying of tobacco leaves. The mean age of death in tobacco cultivating household is 11 years less than non-tobacco cultivating households.

Smokeless tobacco is a leaf tobacco product that can be placed in the mouth or inhaled through the nose, providing nicotine to users without being smoked.

Smokeless tobacco is addictive and contains over 3,000 chemicals, including sweeteners, flavourings, abrasives, salt and other chemicals. While some of these chemicals are naturally occurring, manufacturing, processing and length of storage can influence the levels of toxic chemicals present in smokeless tobacco products (Health Canada, 2010)

Snuff is ground or shredded tobacco and sold in powder form as 'dry' or 'moist' snuff in small pre-measured pouches that resemble small teabags Dry powder snuff can be sniffed or inhaled into the nose and does not require spitting or swallowing of saliva (CDCP, 2010).

"Pinch" or "dip" is another name for moist snuff, which is the predominant form of ST sold in North America. Moist snuff is made from cured tobacco which is processed into 'fine cut' particles or 'long cut' strips and is often flavoured or sweetened. A "pinch" of moist snuff is often placed between the cheek or lower lip and the gum where it releases nicotine by mixing with saliva. The saliva can be spit out; however there are also forms of moist snuff that do not require spitting (PSFC, 2011)

Singh (2012) reported that most of the world's tobacco consumption is in the form of manufactured cigarettes. Multiple forms of both smoked and smokeless tobacco products widely consumed. The most popular smoked form of tobacco is bidis, which are made by rolling tobacco in a tendu leaf, followed by cigarettes. Smokeless tobacco use is more prevalent overall than smoked tobacco, and 90% of the world's smokeless tobacco users are found in this region.

Tobacco can be addictive like alcohol, cocaine, and morphine. Tobacco is a plant grown for its leaves, which are smoked, chewed, or sniffed for a variety of effects. It is a plant within the genus *Nicotiana* of the nightshade family. While there are more than 70 species of tobacco, the chief commercial crop is *Nicotiana tabacum*. Dried tobacco leaves are mainly smoked in cigarettes, cigars, pipe tobacco and

flavored shisha tobacco. They can also be consumed as snuff as well as chewing tobacco and dipping tobacco (Hayley 2014).

2.2 Relationship between selected characteristics of the farmers and their family tobacco product using behavior

2.2.1 Age

A nationwide survey reported smoking by 25.2% of the population aged 15 years and above. (Hossain *et al.*, 1996)

Studies suggest that, in less than three years (2001-2004), tobacco use almost doubled among youth in larger cities (Reddy *et al.*, 2006)

Many are of the belief that young people are picking up the habit of smoking due to ignorance about risks associated with smoking and also that it is a part of adolescent rebelliousness. (Dawn, 2006).

An estimated 65% of all adult men and 33% of all adult women use some form of tobacco and of the millions of people who use chewing tobacco, as many as 25% are under the age of 19 years (Chaly, 2007)

Choudhury *et al.* (2007) had done a study to generate knowledge on tobacco consumption, especially emphasizing the identification of socio-demographic groups who are more prone to tobacco consumption vis-à-vis tobacco-related health consequences in a remote rural area in Bangladesh. This study estimated 15.3% use tobacco between the age 15-24, 50.7% use tobacco between the age 25-34, 70.1% use tobacco between the age 35-44, 63% use tobacco more than 45 years.

Tobacco usage is high among the Bangladeshi population. In total, 36.8% of persons aged 15 years and above, and 51.7% of persons over 30 years of age were current tobacco users – either through smoking, chewing or both (WHO, 2007).

2.2.2 Education

In developing country highest rate of tobacco users (64%) was found among the illiterate population. This prevalence decreases to about one fifth (21%) among those with more than 12 years of schooling. This happens in developed countries too (Jha and Chaloupka, 2000).

A study was done by Subramanian *et al.* (2004) who used data from the National Family Health Survey-2 (1998- 1999). Individuals 15 years and older across all parts of India were surveyed to provide nationally representative estimates of the prevalence of tobacco use, as well as socioeconomic and demographic correlates of tobacco consumption. Socioeconomic differentials of tobacco prevalence were assessed with respect to 3 measures of socioeconomic status were caste, education, and household wealth. The results of this study showed 195 million people chewed or smoked tobacco (an underestimate according to the study) and tobacco consumption was significantly higher among the poor, less educated, scheduled castes, and scheduled tribes. “Scheduled caste” and “Scheduled tribe” represents population groups identified by India’s constitution as being marginal to the mainstream socioeconomic and political processes.

Another study examined the effect of parental education on initiation over time found that higher parental education had a small protective effect on initiation until about age 15, but became a risk factor between ages 17-24. The findings indicated that parental education may delay initiation, but did not have a lasting protective effect (Edelen *et al.*, 2007).

Similarly, Giovino (2007) found that parental education was inversely correlated with smoking prevalence for 8th grade students, but, by 12th grade, the differences in prevalence by parental education were less pronounced. These results substantiate findings that children of parents with more formal education begin smoking at a slightly later age.

2.2.3 Annual income

In Bangladesh where nearly half of the population live below the poverty line and half of those again below the 'hard core' poverty line, the high rates of tobacco consumption in these groups have far reaching consequences. Any spending on tobacco from already-constrained household budgets must compete with expenditure on other basic needs of household members. Concurrently households are placed in a more vulnerable position from the related health problems and their associated economic consequences. Results of a study showed that an estimated 10 million people in Bangladesh currently malnourished could have an adequate diet if money spent on tobacco were spent on food instead (Efroymsen *et al.*, 2001)

Economically, the costs of smoking to smokers and their families include money spent on buying tobacco, which could have been used on food, clothing and shelter, and other important things. As smoking causes the death of many in their working years, a lot family is deprived of many years of income. Smokers also lose a lot of their income through illness. In the event of a smoker's premature death, a partner, children or elderly parents can be left without a means of sustenance. A considerable amount of money is lost by family members of smokers through time spent looking after them when they are sick, and time lost taking them to health centers or hospital. (MacCay and Eriksen, 2002).

Tobacco consumption is strongly associated with poverty, with those in lower socioeconomic classes using tobacco at higher rates (Rani *et al.*, 2004).

Sorensen *et al.* (2005) examined social disparities in tobacco use in a large, population-based sample of adults 35 years and older (n=81837). The study used two indicators to measure socioeconomic position, education and occupation. The results demonstrated that those who were less educated and employed in less skilled jobs were at highest risk for using tobacco. Odds ratios (ORs) for risk of tobacco use according to educational level were higher among illiterate participants (male OR=7.38, female OR =20.95, $p < 0.05$) were at more risk for tobacco use than professionals.

The fact that the poor are also more likely to consume tobacco in its more harmful forms are already more likely to be malnourished and particularly ill equipped to withstand respiratory and other smoking-related diseases and that they are less able to afford healthcare worsens the situation; tobacco-use, thus, may further exacerbate and perpetuate their already vulnerable situation. (Choudhury *et al.*, 2007).

According to WHO (2007) in Bangladesh, those with tobacco related illnesses spent more than average on tobacco. The average household expenditure on tobacco increases with socioeconomic status (classified by wealth quartiles). Moreover, the differential of average expenditure for those with illnesses from all users widens at upper wealth quartiles. These patterns were mostly attributable to the better quality of tobacco products consumed by people with a higher economic status. Tobacco users across all socioeconomic groups spent about 4.5% of their total monthly household expenditure on tobacco smoking and/or chewing. This percentage rises (5.1%) in tobacco users that suffered from a tobacco-related illness. The variation in the allocation of household expenditure to tobacco consumption as a percentage of monthly household expenditure was, however, not discernible by socioeconomic hierarchy. This report also showed the percentage of tobacco users in Bangladesh, both smokers and chewers, was higher among the lower economic class of people.

According to McCay *et al.* (2009) smoking costs the smoker in many ways and the cost of smoking goes beyond purchasing tobacco products. A smoker spends a considerable amount of money on medical bills, lost wages, higher insurance costs, and spends a lot of money on cosmetics and clothing. Studies have found that people in the lower socioeconomic classes smoke more than people in the upper socioeconomic classes.

2.2.4 Peer groups tobacco products using behavior

Peer pressure was the greatest influencing factor to beginning to smoke, and health was the major reason for not beginning to smoke. Addiction and stress maintained smoking (Hayes, 2007).

Young people are less likely to start smoking if their parents do not smoke, it is likely that parental influence is more important than knowledge about smoking (Thomas *et al.*, 2007).

Stepwise logistic regression analysis showed a positive relationship between current smoking and having brother or sister smoking, having more than three friends who were smokers and last school grade (Damianki, 2008).

Concerns for health and addiction, a positive self-image, and perceived confidence, emerged as factors affecting participants' decisions not to smoke. The approval of parents and friends, and personal beliefs further reinforced adolescents' nonsmoking decisions (Kulbok *et al.*, 2008).

Young people are also more likely to smoke if their friends smoke (Thomas and Perera, 2008), so a young person in a group with a low prevalence of smoking, will be less likely to start smoking.

Those students whose siblings smoked were 1.35 times more at risk than those whose siblings did not smoke. Those whose friends smoked were 2.42 times more at risk than those whose friends did not smoke. Those with poor grades 2.62 more at risk than those with good grades. Subjects whose mothers smoked were 1.57 times more at risk than those whose mothers did not smoke (Can *et al.*, 2009).

A study on smokers in the ITC 4-Country Survey indeed found that smokers with fewer smoking friends were more likely to intend to quit, to make a quit attempt, and to be successful in their attempts at the next survey wave (Hitchman and Fong, 2011).

Close friends and family play an important role in the influence of social norms on behaviour, such as smoking initiation and cessation. Unhealthy behaviours such as smoking tend to cluster within social networks, so we would expect smokers to have more friends who smoke than non-smokers (Mead *et al.*, 2014).

Being exposed to friends or family who smoke may also influence smoking cessation outcomes by increasing exposure to smoking cues and to more positive social norms towards smoking (Hitchman *et al.*, 2014).

Where one's closest friends that one hangs around on a daily basis tend to use the same tobacco products. Who use both smoked and smokeless tobacco had the greatest number of friends who use either product compared to single tobacco product users (Genevieve C.S., 2014).

2.2.5 Family religiousness

Samer and Fouad (2004) stated that family religiousness may play a part in health beliefs and behaviors such as tobacco use. They suggest that religiousness in different faiths is associated with less use of tobacco. Members of the same community, even if they adhere to different faiths, seem to have similar patterns of tobacco use.

In a review of the role of religion of a family as a protective factor against negative adolescent health outcomes, Cotton *et al.* (2006) made a clear theoretical distinction between the distal and proximal domains of religion. According to Cotton factors that are more distal include individual *behaviors* (e.g., frequency of attendance of services, prayer, or meditation, etc.) while proximal factors include key *functions* of spirituality (e.g., spiritual coping and spiritual meaning, the reliance on spiritual beliefs and teachings in times of hardship, and one's belief in a higher, divine force). In light of such a distinction, this article will treat practice and belief as two distinct aspects of spirituality.

Religious factors discourage smoking in front of older people in Bangladesh society. Smoking in front of older people is viewed as immodest, and women

almost always smoke in private. These same restrictions, however, do not apply to the consumption of chewing tobacco with paan (Choudhury *et al.*, 2007).

Parental religiousness has positive association with the prevention of adolescent risk behaviors is consistently confirmed. Religiousness in the family including increased teens' spiritual practices and a higher level of parental monitoring is significantly related to teens' alcohol and tobacco use. The negative relationship to drug use is also evident although the statistical association is not as strong. This may be due to the low rates of drug use within this young adolescent population (Aphichat *et al.*, 2010)

2.2.6 Awareness on harmful effect of tobacco use

Smoking has also been named as an important risk factor for heart disease among male patients in their 40s and 50s in Bangladesh (Rahim, 1986)

A study in Dhaka concluded that tobacco consumption either through chewing or smoking was an important factor in the development of oral cancer (Ahmed and Islam, 1990)

By 2025, 70% of the 10 million 3 deaths each year will occur in developing countries, mainly in China and India (Gupta and Ball, 1990).

Tobacco use is estimated to cause 800,000 deaths annually and an estimated 5,500 adolescents initiate daily tobacco use causing an enormous burden on public health (Patel, 1999).

It was found that cancers are steadily increasing and occurring more frequently among younger people (Gupta, 1999).

Tobacco has been found to cause many chronic diseases, acute respiratory diseases such as pneumonia and influenza, and a number of persistent respiratory symptoms such as wheezing and cough (Colditz and Hunter, 2000).

Recent research has demonstrated that smoking increases the risk of death among patients with Tuberculosis (TB) and causes 200,000 extra deaths due to

Tuberculosis (TB). Tuberculosis is one of world's foremost infectious diseases and it disproportionately affects the poor and underprivileged (Gajalakshmi *et al.*,2001) The burning and smoking of tobacco produces a complex mixture of chemicals which are harmful to the health of people who inhale the smoke. Children are at great risk from adults smoking and smoking around a pregnant woman poses a health risk to a foetus (Mackay and Erikson, 2002).

Only 20% of total tobacco consumption is in the form of cigarettes; bidis account for the largest proportion, at about 40% of the total (Shimkhada and Peabody, 2003).

Smoking does not only have harmful health effects, but smoking cessation has been found to result in improvements in health. Quitting smoking leads to almost instant improvements in general health and benefits both persons with smoking-related illnesses as well as those with other ailments. People who stop smoking increase their life expectancy. Also smoking cessation has been found to be related to reductions in the risk of developing lung and other types of cancers. It has also been found to reduce the risk of heart disease. Pregnant women who quit smoking have reduced risks of smoking-related complications such as low birth weight. (Sorensen *et al.*, 2004).

According to Britton (2004) smoking quitting results in improvements in life expectancy and prevention of disease. Quitting smoking also improves individuals' quality of life as smokers tend to have less health problems compared to non-smokers. Individuals and society also benefits from smoking cessation due to reductions in the effects of secondhand smoke.

Nicotine is like heroin and cocaine addiction in some ways because it is a psychoactive drug. It is also considered as a reinforcing drug, which is the reason why the smoker finds it hard to quit. Due to the reinforcing effect, most smokers may find it difficult to stop smoking. Cigarette smoking can be described as a physical and psychological addiction (Becket 2004).

The health effects of tobacco use in India and Bangladesh are more diverse than other nations of the world, given the variety of forms in which tobacco is consumed in this country, including cigarettes, bidis (hand rolled, filterless cigarette), and gutkha (widely available, inexpensive form of chewing tobacco) (Reddy and Gupta, 2004).

Bidis contain higher concentrations of nicotine than both filtered and unfiltered cigarettes and have equally (if not more) deleterious effects on health. Extensive use of chewing tobacco cause oral cancer in the world, with 83,000 incident cases and 46,000 deaths annually (Ferlay, 2004).

Due to steady population growth, coupled with tobacco industry targeting, tobacco use has grown exponentially in low-income countries, leading to millions of individuals becoming addicted to nicotine each year (Mathers *et al.*, 2006).

Studies have shown that the smoker does not only harm him or herself but also puts the life of others at risk. Research has firmly established that an environment devoid of smoke is the only effective way to protect the population from the detrimental effects of secondhand smoke exposure. (WHO, 2007).

Most tobacco users start consuming tobacco before the age of 18, while some initiate as young as 23. In 2006, prevalence of current use of any tobacco among students aged 13-15 years was 14.1 % (Sinha and Gupta, 2007).

Nicotine causes reliance by providing centrally mediated reinforcing effects, by controlling elements such as body weight and mood in a manner that is considered useful or pleasing by the tobacco user and by causing a physical reliance such that abstinence may result in unpleasant symptoms (Jiloha, 2008).

Withdrawal symptoms of nicotine include anxiety, sleep disturbances, depression, increased appetite, irritability, cognitive and attention deficits Although withdrawal is associated with the pharmacological effects of nicotine, many behavioural factors can also contribute to the intensity of withdrawal symptoms. Some smokers claim that the smell, and the mere sight of a cigarette and the ritual of obtaining, lighting,

handling and smoking the cigarette are all linked to the pleasurable effects of smoking and may worsen withdrawal or cravings (National Institute on Drug Abuse, 2009).

Smoking causes damage to different parts of the body such as mouth, teeth, skin, fingernails and hair. Tobacco products contains elements and compounds such as arsenic, carbon monoxide, nicotine and formaldehyde which may cause wrinkles, discolouration of skin complexion and yellowing of fingernails when they enter the bloodstream. Secondhand smoke may also result in cosmetic damage when it gets in contact with the body. The harm caused by smoking on a person's appearance may be cumulative and may take several years of smoking to create observable effects. Smokers who give up the habit can prevent further damage to their physical features but in most cases the years of damage may require cosmetic surgery. Damage caused internally and externally by smoking leads to many changes in a person's appearance. Smoking makes people seem older than they actually are. (McCay *et al.*,2009).

Tobacco smoking can have negative effects on the oral cavity such as bad breath, stained teeth and life threatening conditions such as oral cancer. Also tobacco users often develop gum disease. Since cigarette smoking has negative effects on the respiratory system, a smoker who quits may notice that it is easier to breathe. Smoking cessation reduces the occurrence of symptoms such as cough, mucus production, and wheezing. Smoking cessation may also reduce the occurrence of respiratory infections such as bronchitis and pneumonia (Alters and Schiff, 2009).

Women who are smokers or who stay with a smoker are prone to health effects associated with reproductive health such as problems associated with pregnancy, use of oral contraceptive, menstrual function, and cancers of the cervix and bladder. Smoking may also lead to irregular menstrual cycles and increased menstrual discomfort. Women who are smokers may also have earlier menopause, which increases chances of getting osteoporosis, heart disease and other conditions for

which estrogen provides a protective effect. The risk of sudden infant death syndrome may also increase when a pregnant woman smokes (Issac, 2011).

Based on the findings of a study, it was suggested that the risk of death from lung cancer may rise with amount of cigarettes smoked and duration of smoking (Singh *et al.*, 2012).

2.2.7 Organizational participation

No literature was found about organizational participation and family tobacco product using behavior by the farmer. Probably, no previous research work was done yet about these characteristics of farmers.

2.3 The Conceptual Model of the Study

In view of prime findings of literature review, the researcher constructed a conceptual model of the study, which is self-explanatory and is presented in Figure 1. It was assumed that selected characteristics of the farmers are likely to influence family tobacco products using behavior.

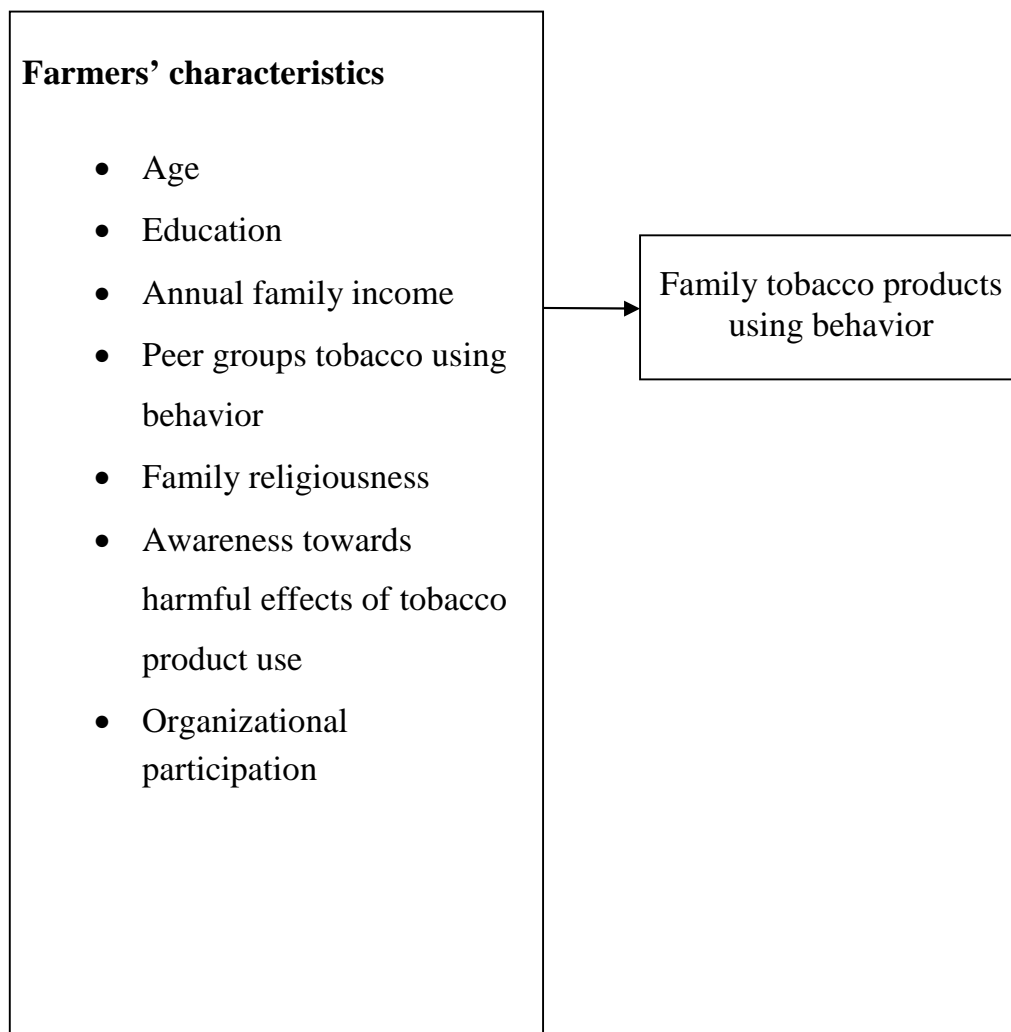


Figure 1. A conceptual framework of the study

CHAPTER 3

METHODOLOGY

Methodology plays an important role in a scientific research. A researcher should be careful in formulating methods and procedures in conducting research. Methodology should be such as would enable the researcher to collect valid data and reliable information and to analyze that information to arrive at correct decisions. The methods and procedures followed in this study are described in this Chapter and presented in the following sections and sub-sections.

3.1 Locale of the Study

Dewanpara and Champatoli villages of Ghagra union of Kawkhali upazilla under Rangamati district were selected purposively as the study area. A map of Rangamati district showing Kawkhali upazilla and a map of Kawkhali upazilla showing study union are shown in Figure 2 and 3 respectively.

3.2 Population and Sample Size of the Study

An up to date list of all the farm families of the selected village was prepared with the help of Agricultural Extension Officer (AEO) of Kawkhali upazilla and Sub-Assistant Agriculture Officer (SAAO) of Ghagra union. The total numbers of farm families in those villages were 1030. Heads of the 1030 farm families constituted the population for this study. Ten percent (10%) of the farmers were selected from these villages by using a table of random number.

Thus, one hundred and three (103) farmers were selected which constituted the sample for this study. However, a reserve list of 10 farmers was also prepared. Farmers in the reserve list were used only when a respondent in the original list was not available.

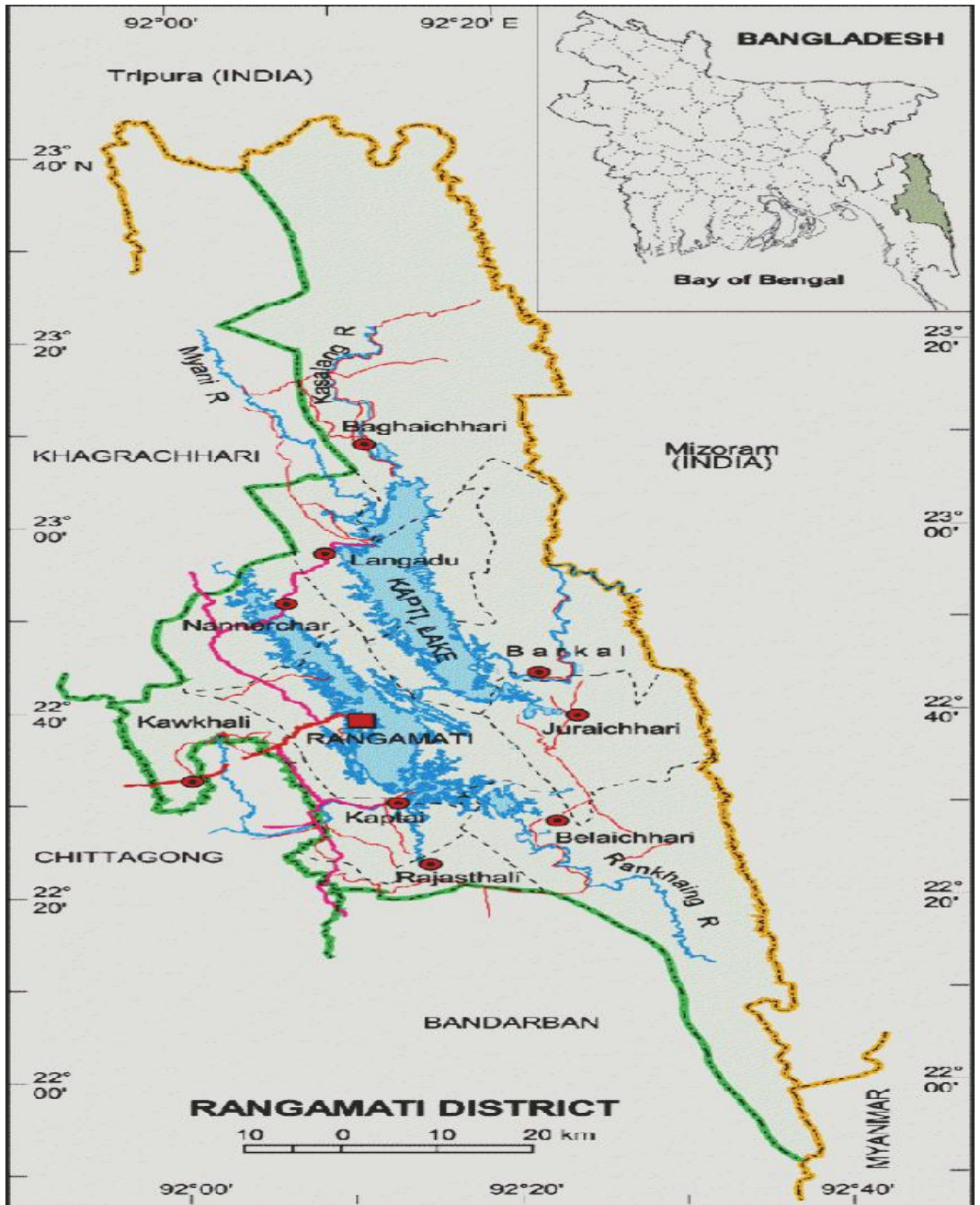


Figure 2. A map of Rangamati district showing Kawkhali upazila

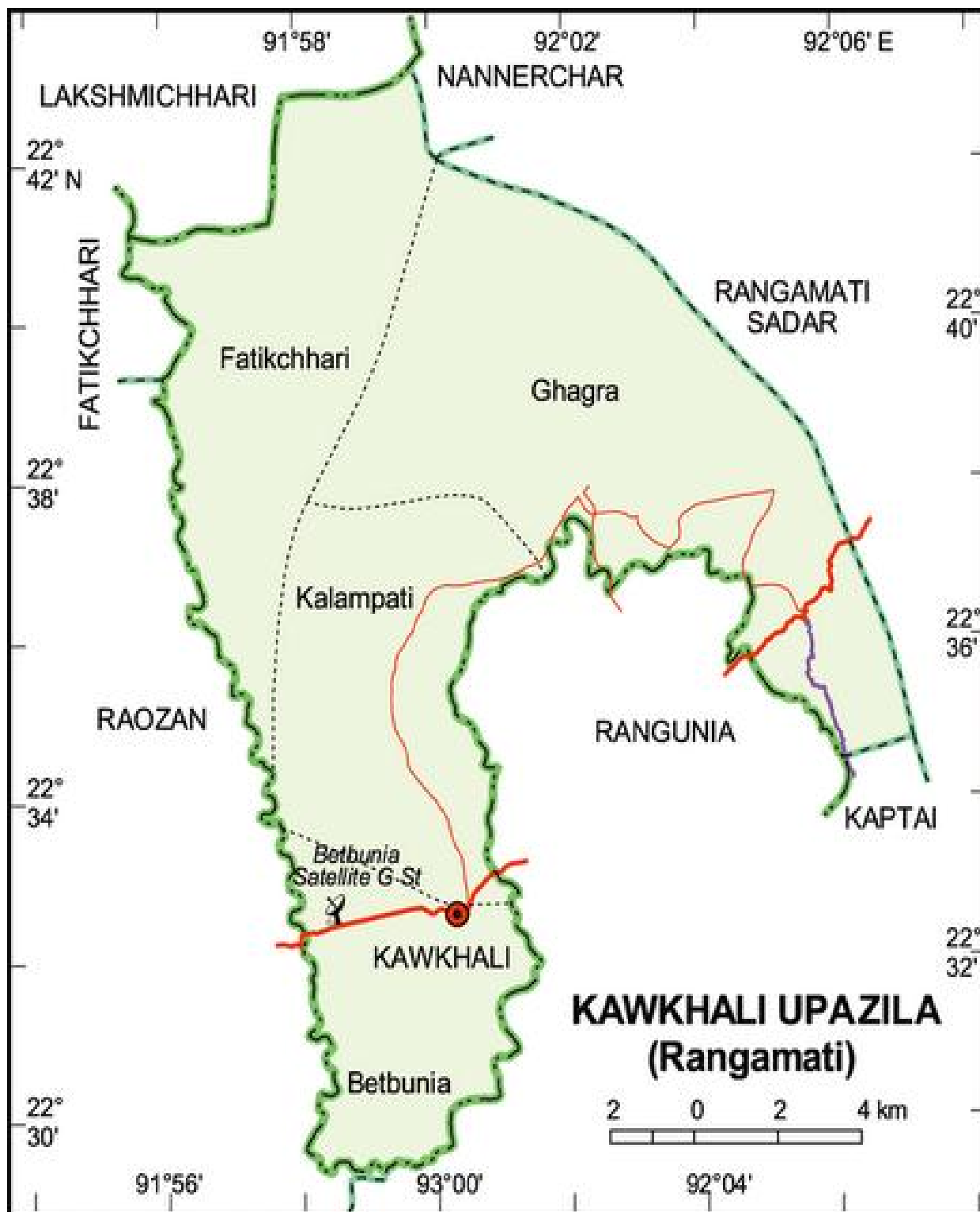


Figure 3. A map of Kawkhali upazila showing the study area

The distribution of the population and sample farmers and those in the reserved list from the selected village is shown in Table 3.1

Table 3.1 Distribution of population and sample of the farmers in two villages of Ghagra union

Name of village	Population of the farmers	Number of farmers included in the sample	Number of farmers included in the reserve list
Dewanpara	650	65	6
Champatoli	380	38	4
Total	1030	103	10

3.3 Measurement of variables

3.3.1 Age

The age of a respondent was measured in terms of actual completed years from his/her birth to the time of interview. A score of one was assigned for each year of age.

3.3.2 Education

Education was measured in terms of years of schooling completed by an individual in educational institutions. The education score was computed for each respondent by giving one score for each year of successful schooling completed. The person who could sign only and who did not read and write was given a score of zero (0).

3.3.3 Family annual income

The term annual income has been used to refer to the total earning of the respondent from agriculture and non-agricultural sources during a year. Annual income of the respondent was measured on the basis of his total yearly income from agricultural and non-agricultural sources in Taka. The income sources from agriculture included crops, fisheries and animal rearing. Non-agricultural sources of income included business, service, daily labor and other income sources of the

respondents or other members of his family. A score of 1 was assigned for one thousand Taka of income of a respondent.

3.3.4 Peer groups tobacco product using behavior

It referred to the tobacco product using behavior by the peer groups of a farmer on using different tobacco product from different sources. A score of 1 was assigned for one time use of each of the tobacco product per day by each member of the peer group of the farmer. The most common selected tobacco products were cigarettes, bidis, zarda, gul, hukka. Finally, the score of peer groups' tobacco product using behavior of a respondent farmer was measured by summing up the scores of all the product of all the members of the peer groups.

3.3.5 Family religiousness

It referred having or showing belief in and reverence for God or Almighty who is the supreme creator. The terms religiousness/religiosity are used interchangeably but often defined as an individual's conviction, devotion, and veneration towards a divinity. It was measured by the extent of religious activities performed by the respondent and his family member. Extent of religious activities score was computed in the following manner:

<u>Extent of religious activities</u>	<u>Score assigned</u>
No activities	0
Rarely	1
Occasionally	2
Regularly	3

Finally, the score of extent of religious activities of family members of a respondent farmer was measured by summing up all the scores.

3.3.6 Awareness on harmful effect of tobacco use

Awareness is the ability to perceive, to feel, or to be conscious of events, objects, thoughts, emotions, or sensory patterns. In this level of consciousness, sense data can be confirmed by an observer without necessarily implying understanding. More broadly, it is the state or quality of being aware of something. In biological psychology, awareness is defined as a human's or an animal's perception and cognitive reaction to a condition or event. The scale contained ten statements and all were positive. The respondents were asked to express their opinion in the form of true, false, no opinion. Scores of 1 was assigned for true. On the other hand, 0 was assigned for false and no opinion.

Hence, awareness towards harmful effect of tobacco use of a respondent was determined by summing up the score obtained by him for all the statements in the scale. The possible awareness towards harmful effect of tobacco use scores of the respondents could range from 0 to 10, where, 0 indicates no awareness and 10 indicates high awareness.

3.3.7 Organizational participation

Organizational participation of a respondent was measured by computing an organizational participation score according to his nature and duration of participation in six (6) selected organizations up to the time of interview. The organizational participation score of a respondent was measured by using the following formula:

$$\text{Organizational participation score} = \sum PXD$$

Where,

P = Participation score

D = Duration score

Participation score was computed in the following manner:

<u><i>Nature of participation</i></u>	<u>Score assigned</u>
No participation	0
Participation as ordinary member	1
Participation as executive member	2
Participation as president/secretary	3

The duration was computed by assigning a score of 1 for each year of participation subject to a maximum of 10 for participation for 10 years or more in an organization. The organizational participation score of a respondent was obtained by multiplying his/her participation score and his/her duration of participation score and then adding his scores for all the organizations he/she participated.

3.3.8 Family tobacco product using behavior

It referred to the family tobacco product using behavior by the family members of a farmer on using different tobacco product from different sources. A score of 1 was assigned for one time use of each of the tobacco product per day by each family member of the respondent farmer. The most common selected tobacco products were cigarettes, bidis, zarda, gul, hukka. Finally, the score of the family tobacco product using behavior of a respondent farmer was measured by summing up the scores of all the product of all the family members of the respondent farmer.

3.4 Collection of Data

The researcher collected data from the farmers by using interview schedule through face to face interview. Before going to the respondents for interview, they were duly informed to ensure their availability at the proper place as per date and time. An excellent co-operation was rendered by Sub-Assistant Agriculture Officer (SAAO), local leaders, school teachers, and farmers. Adequate rapport was established by the researcher with the respondents, so that they do not hesitate to furnish proper responses of the questions and statements. If any respondent failed to understand any question and statement, the researcher took care to explain the issue. Excellent co-operation and co-ordination were obtained from all the

respondents who were concerned in the study during data collection. Data collection was started on 01 October, 2014 and completed on 06 February, 2015.

3.5 Compilation of Data

The researcher compiled data from the interview schedules. Qualitative data were converted into quantitative data by means of suitable scoring wherever necessary. The responses to the questions in the interview schedule were transferred to a master sheet to facilitate tabulation. Then the tabulated data were entered into the computer and analysis was done in accordance with the objectives of the study.

3.6 Statistical Analysis

After compilation, the data were tabulated and analyzed statistically in accordance with the objectives of the study. Various statistical measures such as number, frequency, percent, range, mean and standard deviation were used in describing the selected characteristics of the respondents of the study area. For clarity of understanding, tables were used in presenting the data. For exploring the relationship between family tobacco product using behavior of the farmers with their selected characteristics. Pearson's product moment correlation coefficient (r) was used. Five percent (0.05) level of significance was used as the basis for rejecting any null hypothesis.

3.7 Statements of the hypothesis

The research hypotheses were put forward to test the relationship between each of the 7 selected characteristics of the farmers and their family tobacco product using behavior.

3.7.1 Research hypothesis

The family tobacco product using behavior by the farmers is related with each of their age, education, family annual income, peer groups tobacco product using behavior, family religiousness, awareness towards harmful effect of tobacco use and organizational participation.

3.7.2 Null hypothesis

For statistical testing of the research hypothesis they were converted into null form.

The null hypotheses were as follows:

“There were no relationship between the family tobacco product using behavior by the farmers and each of their age, education, family annual income, , peer groups tobacco product using behavior, family religiousness, awareness towards harmful effect of tobacco use and organizational participation”.

CHAPTER 4

FINDINGS AND DISCUSSION

This Chapter is divided into three sections. First section deals with the selected characteristics of the farmers. Second section deals with the family tobacco product using behavior by the farmers. The last section deals with the relationship between selected characteristics of the farmers and their family tobacco product using behavior.

4.1 Family Tobacco Product Using Behavior by the Farmers

Family tobacco product using behavior by the farmer was measured by computing the use score of different products according to the procedure described earlier in Chapter 3. Findings revealed the score of range of family tobacco product using behavior of the farmers had 8-38 with a mean and standard deviation of 24.24 and 5.75 respectively. The respondents were classified into three categories on the basis of their family tobacco product using behavior as shown in Table 4.1.

Table 4.1 Distribution of the respondent according to their family tobacco products using behavior

Categories	Number	Percent
Low (upto 18)	16	15.5
Medium (19-29)	71	69.0
High (> 29)	16	15.5

Data contained in Table 4.1 show that the majority (69.0 percent) of the respondents had medium tobacco product using behavior, 15.5 percent had low use, and 15.5 percent had high use on tobacco product by the farmer's family members. It is revealed that overwhelming majority (84.5 percent) of the respondent farmer had medium to high family tobacco product using behavior compared to 15.5 percent low family tobacco product using behavior.

4.2 Selected Individual Characteristics of the Farmers

Moreover, farmer's individual characteristics and personal make-up play a vital role in adopting any practice where it is beneficiary or not. Family tobacco product using behavior is harmful for a farmer but he may not be in a position to accept it due to his varied mental make-up and situational factors. The individual characteristics of the farmers may greatly vary and the various factors might have great impact on their use of tobacco products. The salient features of different individual characteristics of the farmers are shown in Table 4.2.

Table 4.2 Salient features of the sample farmers' selected characteristics

Selected characteristics	Possible range	Observed range	Mean	SD
Age (Year)	-	20-79	37.01	9.59
Education (Year of schooling)	-	0-16	6.14	5.58
Annual income (in TK.)	-	95-900	286.19	116.29
Family tobacco products using behavior	-	8-38	24.24	5.75
Peer groups tobacco products using behavior	-	10-66	20.37	11.30
Family religiousness	-	2-8	5.18	1.41
Awareness on harmful effect of using tobacco product	1-10	1-10	5.95	2.30
Organizational participation	-	0-16	4.64	4.27

4.2.1 Age

Age of the farmer was measured by computing the use score according to the procedure described earlier in Chapter 3. Findings revealed the score of range of age of the farmers had 20-79 with a mean and standard deviation of 37.01 and 9.59 respectively. The respondents were classified into three categories on the basis of their age as shown in Table 4.3.

Table 4.3 Distribution of the respondents according to their age

Categories	Number	Percent
Young (upto 35)	53	51.5
Middle (36-50)	41	39.8
Old (>50)	09	8.7

Data contained in Table 4.3 show that above half proportion (51.5 percent) of the respondents were young farmers compared to 39.8 percent middle aged, and 8.7 percent old aged. It appears that overwhelming majority (91.3 percent) of the farmers in the study area were either young or middle aged as compared to 8.7 percent constituting the old aged category. Young and middle aged people are generally more receptive to use of tobacco products. Hilly areas in Rangamati district, their tobacco using behavior is more than the aged people.

4.2.2 Education

Education of the respondents was measured by following the procedure as discussed earlier in Chapter 3. The education score ranged from 0 to 16 with an average of 6.14 and the standard deviation of 5.58. Based on their education score, the farmers were classified into four categories as shown in Table 4.4.

Table 4.4 Distribution of the respondents according to their education

Categories	Number	Percent
Illeterate (0)	45	43.7
Primary education (1-5)	07	6.8
Secondary education (6-10)	23	22.3
Above secondary (>10)	28	27.2

Data presented in Table 4.4 indicate that the highest proportion (43.7 percent) of the respondents were illiterate compared to 6.8 percent had primary education, 22.3 percent had secondary education, 27.2 percent had above secondary education.

4.2.3 Annual income

Annual income of the respondents was measured by following the procedure as discussed earlier in Chapter 3. The annual income of the respondents ranged from 95 to 900 thousand Taka with an average of 286.19 thousand Taka and the standard deviation of 116.29. On the basis of their annual income of the farmers were classified into three categories. The categories and distribution of the respondents were shown in Table 4.5.

Table 4.5 Distribution of the respondents according to their annual income

Categories	Number	Percent
Low (upto 200)	25	24.3
Medium (201-400)	71	68.9
High (>400)	7	6.8

The data in Table 4.5 showed that 68.9 percent of the farmers had medium annual income, 24.3 percent of the respondents had low income and 6.8 percent had high income category. It also shows that above half proportion (68.9 percent) of the

respondents had medium annual income compared to 6.8 percent high and 24.3 percent had low annual income. Practically, the per capita income is comparatively higher in hilly areas than the average capita income in Bangladesh.

4.2.4 Peer groups tobacco using behavior

Peer groups tobacco product using behavior ranged from 10 to 66 products including cigarettes, bidis, zarda, gul, hukka and an average of 20.37 and standard deviation of 11.30. On the basis of peer group tobacco product using behavior, the farmers were classified into three categories. The categories and distribution of the respondents were shown in Table 4.6.

Table 4.6 Distribution of the respondents according to their peer groups tobacco product using behavior

Categories	Number	Percent
Low (upto 14)	30	29.2
Medium (14-26)	57	55.3
High (> 26)	16	15.5

The data in the Table 4.6 showed that above half proportion (55.3 percent) of the respondent had medium peer groups tobacco product using behavior compared to 15.5 percent respondent had high and 29.2 percent respondent farmers had low peer groups tobacco product using behavior.

4.2.5 Family religiousness

The family religiousness score of the respondents ranged from 2 to 8 with an average of 5.18 and the standard deviation 1.41. Based on the religiousness, the respondents were classified into three categories.

Data presented in Table 4.7 indicate that the highest proportion (73.7 percent) of the farmers were medium religious, 14.6 percent of the farmers were high religious and 11.7 percent of the respondents low religious.

Table 4.7 Distribution of the respondents according to their family

Selected characteristics	Observed range	Categories	Number	Percent	Mean	SD
Family religiousness	2-8	Low (upto 3)	12	11.7	5.18	1.41
		Medium (4-6)	76	73.7		
		High (> 6)	15	14.6		

religiousness

It appears that overwhelming majority (88.4 percent) of the farmers were medium to high religious. It is therefore, likely that family religiousness might have effect on the family tobacco product using behavior by the farmer.

4.2.6 Awareness on harmful effects of using tobacco product

Awareness on harmful effect of using tobacco product score of the farmers ranged from 1 to 10 against the possible range of 0-10 with the mean and standard deviation 5.95 and 2.30 respectively. The farmers were classified into three categories based on their Awareness on harmful effects of using tobacco product. The categories and the distribution of the farmers are shown in Table 4.8

Table 4.8 Distribution of the respondents according to their awareness on harmful effect of using tobacco product

Categories	Number	Percent
Low (Upto 3)	14	13.6
Medium (4-6)	53	51.4
High(>7)	36	35.0

The data presented in Table 4.8 show that the above half (51.4 percent) proportion of the respondents had moderately awareness compared to 35.0 percent high awareness and 13.6 percent low awareness on using of tobacco products.

4.2.7 Organizational participation

The organizational participation score of the respondents ranged from 0 to 16 with an average of 4.64 and the standard deviation of 4.27. Based on the organizational participation score, the respondents were classified into four categories.

Data presented in Table 4.9 indicate that the highest proportion (60.2 percent) of the farmers had low organizational participation while, 24.3 percent of the farmers had medium and 11.6 percent of the respondents had high participation in different organizations and 3.9 percent had no participation in any organization.

Table 4.9 Distribution of the respondents according to their organizational participation

Categories	Number	Percent
No participation(0)	4	3.9
Low (1-5)	62	60.2
Medium (6-10)	25	24.3
High (>10)	12	11.6

It appeared that overwhelming majority (84.5percent) of the respondents had low to medium organizational participation.

4.3 Relationship between Selected Characteristics of the Farmers and Family Tobacco Product Using Behavior by the Farmers

Family tobacco product using behavior of the farmer was the main focus of the study. Again, the seven selected characteristics of the farmers such as age, education, family annual income, peer groups tobacco product using behavior,

awareness on harmful effect of using tobacco product, organizational participation were considered as the independent variables for the study.

The purpose of the section was to examine the relationship of the selected characteristics of the farmer with their family tobacco product using behavior. Person Product Moment Co-efficient of Correlation (r) was computed to determine the relationship between the variables which are discussed in the following sub-sections. (Table 4.10)

Table 4.10 Computed co-efficient of correlation (r) between farmers selected characteristics and their family tobacco product using behaviour (N=103)

	Selected characteristics of the farmer	Values of “r” with 101 d.f.	Table value of “r”	
			0.05 level	0.01 level
Family tobacco product using behavior	Age	0.459**	0.193	0.252
	Education	-0.484**		
	Annual income	0.145 ^{NS}		
	Peer groups tobacco using behavior	0.058 ^{NS}		
	Family religiousness	0.077 ^{NS}		
	Awareness on harmful effect of tobacco products use	-0.465**		
	Organizational participation	0.352**		

NS = Not significant

*Correlation is significant at 0.05 level of probability

** Correlation is significant at 0.01 level of probability

4.3.1 Age and family tobacco product using behavior

The computed value of correlation was found to be 0.459 as shown in Table 4.10.

Following observation were made regarding the relationship between these two variables under consideration:

- a) The relation showed a positive trend.
- b) The computed value of r (0.459) was found to be greater than tabulated value ($r = 0.252$) with 101 degrees of freedom at 0.01 level of probability.

Based on the above findings, the null hypothesis was rejected and hence, the researcher concluded that the age of the respondents had significant relationship with family tobacco product using behavior by the farmer. Similar findings were also found by Reddy (2006), Dawn(2006), Chaly(2007) in their studis.

4.3.2 Education and family tobacco product using behavior

The computed value of correlation was found to be -0.484 as shown in Table 4.10.

Following observations were made regarding the relationship between two variables under consideration:

- a) The relationship showed a negative trend.
- b) The computed value of r (-0.484) was found to be greater than the tabulated value ($r = 0.252$) with 101 degrees of freedom at 0.01 level of probability.

Based on the above findings the null hypothesis was rejected and hence, it was concluded that the education of the respondents had negatively significant positive relationship with their family tobacco product using behavior by the farmer. This indicates that the higher is the level of the education of a person the less would be the extent of use of tobacco products. Education enables individuals to gain knowledge and thus increase their power of understanding, consequently their outlook is broadened and horizon of knowledge is expanded. The educated person used to have frequent contact with printed materials which increase their power of understanding compared to the individuals with less educational background. Similar findings were also found by Edelen (2007), Giovino (2007), Subramanian (2004) in their studies.

4.3.3 Annual income and family tobacco product using behavior

The computed value of correlation was found to be 0.145 as shown in Table 4.10. Following observations were made regarding the relationship between these two variables under consideration:

- a) The relationship showed a positive trend.
- b) The computed value of r (0.145) was found to be smaller than the tabulated value ($r = 0.252$) with 101 degrees of freedom at 0.01 level of probability.

From the above findings, the null hypothesis could not be rejected and hence, the researcher concluded that the annual income of the respondents had no significant relationship with family tobacco product using behavior by the farmer. As the computed value showed a positive trend, it may be expected that the higher the

income, the more use of tobacco products. Similar findings were also found by MacCay and Eriksen, (2002), Rani(2004) in their studis.

4.3.4 Peer groups tobacco product using behavior and family tobacco product using behavior

The computed value of correlation was found to be 0.058 as shown in Table 4.10. Following observations were made regarding the relationship between these two variables under considerations:

- a) The relationship showed a positive trend .
- b) The computed value of r (0.058) was found to be smaller than the tabulated value ($r=0.252$) with 101 degrees of freedom at 0.01 level of probability.

Based on the above findings, the null hypothesis could not be rejected and hence, the researcher concluded that the peer groups tobacco product using behavior of the respondents had no relationship with family tobacco product using behavior by the farmer. Similar findings were also found by Hitchman and Fong(2011), Kulbok(2008) in their studis.

4.3.5 Family religiousness and family tobacco product using behavior

The computed value of correlation was found to be 0.077 as shown in Table 4.10. Following observations were made regarding the relationship between these two variables under consideration:

- a) The relationship showed a positive trend .
- b) The computed value of r (0.077) was found to be smaller than the tabulated value ($r=0.193$) with 101 degrees of freedom at .05 level of probability.

Based on the above findings, the null hypothesis could not be rejected and hence, the researcher concluded that the family religiousness of the respondents had no

relationship with family tobacco product using behavior by the farmer. Similar findings were also found by Samer and Fouad (2004), Cotton (2006), Choudhury (2007).

4.3.6 Awareness on harmful effect of using tobacco product and family tobacco product using behavior

The computed value of correlation was found to be 0.127 as shown in Table 4.10. Following observations were made regarding the relationship between these two variables under consideration:

- a) The relationship showed a negative trend.
- b) The computed value of 'r' (-0.465) was found to be greater than the tabulated value ($r=0.252$) with 101 degrees of freedom at 0.01 level of probability. Hence, the relationship was negatively significant.

Based on the above finding the concerned null hypothesis was rejected. This implies that awareness helped to less the family tobacco product using behavior by the farmers. Awareness helps to know the harmful effect of tobacco product as a result farmer decreases using tobacco product. Similar findings were also found by Ahmed and Islam (1990), Patel(1999), Gupta (1999).

4.3.7 Organizational participation and family tobacco product using behavior

The computed value of correlation was found to be 0.352 as shown in Table 4.10. Following observations were made regarding the relationship between these two variables under consideration:

- a) The relationship showed a positive trend.
- b) The computed value of r (.352) was found to be greater than the tabulated value ($r=0.252$) with 101 degrees of freedom at 0.01 level of probability. Hence, the relationship was significant at 0.01 level of probability. Considering the correlation value the concerned null hypothesis was rejected.

It indicates that with the increase of organizational participation, there was an increase in the family tobacco product using behavior by the farmer.

CHAPTER 5

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Findings

The major findings of the study are summarized below:

5.1.1 Family tobacco product using behavior

An overwhelming majority (84.5 percent) of the respondent farmers had medium to high family tobacco product using behavior compared to 15.5 percent low family tobacco product using behavior.

5.1.2 Selected characteristics of the farmers

Age: An absolute majority (91.3 percent) of the farmers in the study area were either young or middle aged as compared to 8.7 percent constituting the old aged category.

Education: The highest proportion of the respondents (43.7 percent) had no education compared to 6.8 percent having primary education and 22.3 percent having secondary education and 27.2 percent having above secondary education.

Family annual income: It was revealed that above three-fourth proportion (68.9 percent) of the respondents had medium family annual income compared to 6.8 percent high and 24.3 percent had low family annual income.

Peer groups tobacco product using behavior: Above fifty percent (55.3 percent) of the respondents had medium peer groups tobacco product using behavior compared to 15.5 percent had high and 29.2 percent had low peer groups tobacco product using behavior.

Family religiousness: An overwhelming majority (88.4 percent) of the farmers were medium to high religious compared to 11.7 percent low religious.

Awareness on harmful effects of using tobacco product: Slightly above half (51.4 percent) of the respondents had moderate awareness compared to 35.0 percent high awareness and 13.6 percent low awareness on account of using tobacco products.

Organizational participation: The highest proportion (60.2 percent) of the farmers had low organizational participation while, 24.3 percent of the farmers had medium and 11.6 percent had high participation in different organizations and 3.9 percent had no participation in any organization.

5.1.3 Relationship between selected characteristics of the farmers and their family tobacco product using behavior

The Pearson's Product Moment Correlation (r) showed that age and organizational participation were positive and significantly related with the family tobacco product using behavior by the farmers. Education and awareness showed negatively significant relationship with the family tobacco product using behavior by the farmers. However, annual income, peer groups tobacco using behavior, family religiousness of the farmers had no significant relationship with the family tobacco product using behavior by the farmers.

5.2 Conclusions

Based on the findings of this study the following conclusions have been drawn:

1. Family tobacco product using behavior of the farmer was very high in the study areas of Rangamati districts. It is therefore, necessary to reduce tobacco product using behavior of the farmers and warn them against its adverse effect.
2. Age of the farmers had positive significant relationship with their family tobacco product using behavior which leads to the conclusion that more the age of the farmers the more was their use of tobacco products and vice-versa.

3. Education of the farmers had negative and highly significant relationship with their family tobacco product using behavior which leads to the conclusion that more the level of education of the farmers the less was their use of tobacco products and vice-versa.
4. Organization participation of the respondents had a positive and significant relationship with their use of tobacco products. This indicates that with the increase of organizational participation of the farmers, family tobacco product using behavior of the farmer was increased. It might be due to that the farmers were induced to smoking from their organizational partners and associates.
5. Awareness on harmful effects of tobacco products of the farmers had negative and highly significant relationship with their family tobacco product using behavior which leads to the conclusion that more the level of awareness of the farmers the less was their use of tobacco products and vice-versa.

5.3 Recommendation

Based on the findings and conclusions of the study, the following recommendations were made.

5.3.1 Recommendations for policy implication

1. Family tobacco product using behavior of the farmers was very high. Therefore, it may be recommended that steps should be taken to motivate the farmer and their family member for lowering family tobacco product use.
2. Aged farmers were the more users of tobacco products. On the other hand educated farmers were the less users of tobacco products. Therefore, It may be recommended that motivational activities should be done by establishing adult learning centers for reducing tobacco product use.
3. Farmers having more organizational participation were the more user of tobacco product. Therefore, it may be recommended that motivational activities need to be promoted in the meetings of the local organizations to reduce tobacco product use.
4. Farmers having more awareness on harmful effect of using tobacco product were the less user of tobacco product. Therefore, it may be recommended that

development agencies and health extension providers should provide functional education to the farmers, so that they became aware about the harmful effect of using tobacco product and minimize harmful effects of using those products in future.

5.3.2 Recommendations for future study

1. This research was limited in Dewanpara and Champatoli in Ghagra union of Kawkhali upazila of Rangamati district in Bangladesh. So, Similar research should be conducted in other places considering socio-cultural aspects, geographical and agro ecological variables etc. to get representative picture of the country as a whole.
2. Only seven characteristics of the farmers were studied in this research, but there are so many characteristics which can influence the use of tobacco products. Considering other important characteristics similar research should be conducted in future to address this issue in a more holistic view.
3. Scientific studies need to be undertaken focusing both health hazards and economic costs resulting from tobacco use by different categories of people from local to national level.

APPENDIX-1
(English Version of the Interview Schedule)
Department of Agricultural Extension and Information System
Sher-e-Bangla Agricultural University, Dhaka-1207

**"USE OF TOBACCO PRODUCTS BY THE FARMERS OF SELECTED
AREAS OF RANGAMATI"**

Date.....

Serial.No.....

Name of the respondent :

Father's name:

Village:

Union:

Upazila:

District:

Please answer the following questions

1. Age

How old are you? years

2. Level of education

Please mention your level of education

a) Can not read and write

b) Can sign only

c) I have passed class

3. Family annual income:

Please mention your annual income from the following sources.

Sl. No.	Source of income	Amount of income(in TK.)
1.		
2.		
3.		
4.		
5.		
6.		
7.		
Total annual income=		

6. Awareness on harmful effect of tobacco product use:

Mention your opinion about the following statements:

No.	Opinion	T	F	N
1.	Use of tobacco products causes cancer			
2.	Smoking is a major risk factor for heart attacks, Chronic Obstructive Pulmonary Disease (COPD), emphysema and cancer			
3.	Tobacco products enhance health hazard			
4.	Bronchitis can be affected by using tobacco products			
5.	Using tobacco products may cause heart disease			
6.	Smoking can causes asthma			
7.	Tobacco product causes environmental pollution			
8.	Non smoker can also be affected by smoker if they stay nearby			
9.	Tobacco product damages nerve cell and lead to brain stroke			
10.	Mental health disorders have been strongly associated with smoking, especially among adolescents and young adults			

*T=True, F=False, N= No opinion

7. Organizational participation

Please indicate the nature and duration of your participation in the following organizations:

Sl. No.	Name of the organization	Natura and duration of participation (year)			
		No participation	Ordinary member	Executive committee member	Executive Committee officer
1.	Farmer's co-operative samity				
2.	School committee				
3.	Mosque committee				
4.	Religious school committee				
5.	Market committee				
6.	Culture & sports/youth club				

8. Tobacco product using behavior of the family members

Please provide following information:

Name of the family member	Extent of using tobacco product				
	Cigarettes (No. of times per day)	Bidis (No. of times per day)	Zarda (No. of times per day)	Gul (No. of times per day)	Hukka (No. of times per day)

Thank you for your kind co-operation,

.....
Signature of the Interviewer

Date:

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