THE KNOWLEDGE ON SMOKING OF ROYAL THAI AIR FORCE (RTAF) HEADQUARTERS OFFICIAL

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OF THE REQUIREMENTS FOR THE DEGREE OF
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FACULTY OF GRADUATE STUDIES
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2007

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Lastly, had virtues of this research contributed benefits to societies as general, the research would offer them to my parents who were my highest indebtedness and my ever-moral supports.

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THE KNOWLEDGE ON SMOKING OF ROYAL THAI AIR FORCE (RTAF) HEADQUARTERS OFFICIAL

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ABSTRACT

The objectives of the research were to study the knowledge on smoking, the smoking hazards and health care from smoking of Royal Thai Air Force (RTAF) headquarters officials. Three-hundred and four officials in the Royal Thai Air Force (RTAF) headquarters were the sample. A questionnaire was the instrument for data collection. Data was analysed through amount, percentage, mean, standard deviation and Chi-square with SPSS.

The results of this search were that different personal data and knowledge on smoking had a significant effect on life quality. Most samples had a good knowledge on smoking. Some of them had a fair knowledge on smoking, and some of them had a smoking habit. They had known the danger of smoking but they need to smoke cigarettes.

Recommendations for this research were that the Royal Thai Air Force (RTAF) should encourage the no smoking campaign more. Checking the health annual, some men had reduced smoking. Non-smoking men had a right to protection.

KEY WORDS: KNOWLEDGE / SMOKING CIGARATTE / ROYAL THAI AIR FORCE (RTAF)

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องค์ความรู้เกี่ยวกับการสูบบุหรี่ของข้าราชการกองทัพอากาศ : กองบัญชาการกองทัพอากาศ (THE KNOWLEDGE ON SMOKING OF ROYAL THAI AIR FORCE (RTAF) HEADQUARTERS OFFICIAL)

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาถึงองค์ความรู้เกี่ยวกับการสูบบุหรี่ การตระหนักถึงพิษภัยและอันตรายของการสูบบุหรี่ การดูแลสุขภาพร่างกายที่เกิดจากการสูบบุหรี่และไม่สูบบุหรี่ เพราะผู้วิจัยและกองทัพอากาศไทยเห็นถึงความสำคัญของการส่งเสริมการมีสุขภาพดีของข้าราชการกองทัพอากาศ การศึกษาวิจัยจะเป็นข้อมูลสำคัญในการรณรงค์ด้านการส่งเสริมสุขภาพ ทำการเก็บรวบรวมข้อมูลด้วยแบบสอบถามจากข้าราชการกองทัพอากาศไทยในส่วนของกองบัญชาการกองทัพอากาศ โดยวิธีการสุ่มตัวอย่าง รวมกลุ่มตัวอย่าง 340 คน ประมวลผลและวิเคราะห์ข้อมูลด้วยโปรแกรม SPSS สรุปผลการวิจัยได้ดังนี้

ข้อมูลส่วนบุคคล องค์ความรู้เกี่ยวกับการสูบบุหรี่ มีผลต่อความตระหนักถึงพิษภัยและอันตรายของการสูบบุหรี่ การดูแลสุขภาพร่างกาย กลุ่มตัวอย่างส่วนใหญ่มีองค์ความรู้เกี่ยวกับการสูบบุหรี่อยู่ในเกณฑ์ดี มีบางส่วนมีองค์ความรู้อยู่ในระดับปานกลาง จากการศึกษายังพบว่ากลุ่มตัวอย่างยังเป็นผู้สูบบุหรี่อยู่ในระดับสูง และทราบดีถึงพิษภัยของบุหรี่ แต่ยังมีความต้องการและจำเป็นต้องสูบบุหรี่

ผู้วิจัยเสนอแนะดังต่อไปนี้

กองทัพอากาศไทยต้องเพิ่มการรณรงค์การห้ามสูบบุหรี่ให้มากขึ้น มีการตรวจสุขภาพประจำปี ผู้ที่สูบบุหรี่อยู่แล้วต้องลดปริมาณการสูบลง และอยู่ในที่พิเศษ ผู้ที่ไม่สูบบุหรี่ต้องรักษาสิทธิของผู้ไม่สูบบุหรี่มากขึ้น

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CHAPTER 1
INTRODUCTION

1.1 Background and Significance of the Research

There are several types of addictive drugs such as Amphetamine, Heroin, and Opium, to name a few. However, one of them that we are very familiar with, but could cause more harm to health, both to smokers and people near them, is cigarettes which are legally sold, easily found in the market, or even accepted as stress relievers by some people.

Cigarette, an addictive substance, causing adverse health effects, death, or economy loss, has always been known as an arguable issue. Currently, there are approximate 1,100 billion smokers worldwide. One third of them are adults, and 70% of them live in countries with low-to-moderate income population. According to US Surgeon General Report in 2004, cigarette smoking is a major cause of 36 health problems such as 10 cancer types, heart disease, artery disease, cardiovascular disease, reproductive disorders, and others. At present, approximately 5 million people died from smoking per year, or about 13,000 people per day (source: World Bank :www.who.int/tobacco/wntd/en)

According to the National statistical Office of Thailand on smoking behavior among Thai people in 2004, there were 9.6 million people classified as “regular smokers”, which is lower than those surveyed in 2001 (10.6 million smokers/ 9,627,686 men and 525,695 women). Within this group, 6.2 millions had educational degrees in primary school or lower (64% of all smokers). The highest number of smokers came from Northeast Thailand (3.5 millions), with the lowest from Bangkok (858,420 people). In Thailand, smoking-caused diseases are ranked second below AIDS, with alcohol problems in third place. Smoking is also the main

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cause of heart disease and cancers, being a factor contributing to the highest death rate. Currently, 52,000 Thai people die from smoking annually (142 people per day or 6 per hour).

Referred to medical findings in several countries, cigarette smoke from a person smoking 20 cigarettes in an unventilated room could cause nearby people/nonsmokers to inhale smoke equivalent to that from 1 smoked cigarette. A nonsmoker working 30 minutes in a smoked-filled room could have the same Carbon monoxide (CO) level in blood as that who smokes 1 cigarette. Therefore, a nonsmoker is likely to develop lung cancer, and his/her lung could be damaged in the same fashion as that who smokes 1-10 cigarettes. A nonsmoker exposed to cigarette smoke will have a chance of heart disease, and is likely to develop certain problems in lung as well as in artery, heart, and lever, including cancers in body parts.

Thai Farmer Bank Research Center had conducted a survey on “Smoking habits among Bangkok Resident” by taking 1,271 samples in May 2003. The finding revealed that each Bangkok smoker spent about 15.07% of salary on smoking per month.

The World Health Organization designates the 31st May of each year as “the world’s No-Smoking day” to make the world aware of smoking dangers and to promote the Anti- Smoking campaigns in countries worldwide so as to keep people from getting adverse effects caused by cigarette smoke, including other cigarette-related losses, both economically and socially.

Concerning smoking habits, the research author has perceived that special attention should be paid to smoking behaviors within RTAF community because most new personnel joining the military are quite young and independent, both men and women alike. As stated in the internal publications of several Tobacco companies, Sales promotion as well as advertisement has focused mainly on people just changing or accepting new behavioral patterns. The military usually has young

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men who just turned to adulthood – a period individuals want to be accepted socially by their peers, showing their masculinity, and wanting to participate in the society.

The Royal Thai Air Force (RTAF) has realized the importance of health promotion beneficial to its personnel, understanding that good health is vital in military profession. This vision is in agreement with the government's health policy - good health prevails over treatment. Most health problems involve personal habits that do not encourage health promotion, such as lack of exercise, consumption of unhealthy food, or heavy drinking and smoking. As a result, RTAF initiated health a promotion project between 2002-2006, aiming to promote activities creating good health among all Air Force personnel. According to a study on Smoking habit among Thai military personnel in 2003, most sample groups (60.2%) had never smoked, 21.7% still smoke, 18% no longer smoke, 16.1% consider cigarette as a stress releaser. Studying statistics of sick RTAF personnel at Bhumiphol hospital in fiscal year 2002, one can see that top ten diseases are non-infective types, relating to circulation, endocrine, nutrition, metabolism, and muscular system. Diseases leading to death usually involve digestion, tumor, heart and circulation, allergy, and chronic kidney disease. Such finding illustrates that sickness among RTAF personnel is correlated to cigarette smoking.

The researcher whose student in master of art, Addictionology and a personnel of RTAF wants to study the knowledge on smoking of Royal Thai Air Force (RTAF) headquarter official.

1.2 Objectives of the Research

1.2.1 To study the knowledge on smoking of Royal Thai Air Force (RTAF) Headquarter official.

1.2.2 To study the smoking hazards and health care from smoking of Royal Thai Air Force (RTAF) Headquarter official.

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1.3 Scope of the Research

In this research, the researcher targets her study to the knowledge on smoking of Royal Thai Air Force (RTAF) Headquarter official by sampling.

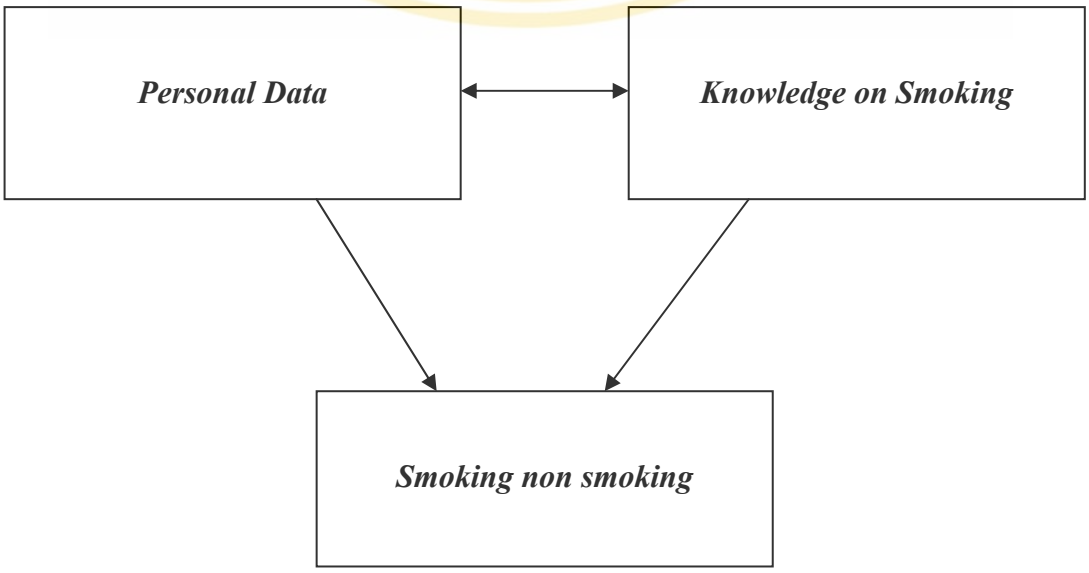
1.4 Definition of Terms

1.4.1 Knowledge means information or details accumulatively stored within individual's memory, and it can be retried for later use.

1.4.2 Cigarette means a product manufactured out of cured and finely cut tobacco leaves, which are rolled or stuffed into a paper-wrapped cylinder.

1.4.3 Tobacco smoking means usually referred to as "smoking", is the act of burring the dried or cured leaves of the tobacco plant and inhaling the smoke.

1.5 Conceptual Framework



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1.6 Variables of the Research

1.6.1 Dependent variables of personal data

- Gender
- Age
- Marriage status
- Military Rank
- Education
- Income
- Residential area
- Current assigned
- Years of military service
- Personal illness
- Healthiness
- Duration of smoking
- Years of smoking
- Quantity of smoking
- Reason for first

1.6.2 Dependent variables of knowledge

- Knowledge on smoking
- Knowledge on law
- Knowledge on rights

1.6.3 Independent variable

- Smoking
- Non smoking

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1.7 Hypothesis of Research

1.7.1 Personal detail from different sample groups cause difference of smoking knowledge base.

1.7.2 Sample group's personal details are related to smoking knowledge base.

1.7.3 Different personal details result in different smoking opinions among those working at the RTAF Headquarters.

1.7.4 Personal details of sample groups are related to smoking opinions taken from those working at the RTAT Headquarters.

1.7.5 The RTAF personnel's smoking knowledge base is related to their smoking opinions.

1.8 Expected Benefit

1.8.1 To know the knowledge on smoking of Royal Thai Air Force (RTAF) Headquarter official.

1.8.2 Applicability of findings as data base for developing health quality of Royal Thai Air Force (RTAF) official.

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CHAPTER 2
LITERATURE REVIEW

In the study of "THE KNOWLEDGE ON SMOKING OF ROYAL THAI AIR FORCE (RTAF) HEADQUARTER OFFICIAL". The researcher had reviewed the literatures documents and related. The content had been categorized as follows;

2.1 Concept of Knowledge and Knowledge Base
2.2 Types of Addictive Drugs
2.3 Cigarette
2.4 Knowledge on cigarette
2.5 Relevant Smoking Laws
2.6 Health Hazards of smoking
2.7 The Royal Thai Air Force Structure
2.8 RTAF Policies and Implementation Plans Regarding Health Promotion
2.9 Related Research

2.1 Concept of Knowledge and Knowledge Base

2.1.1 Knowledge

According to the Dictionary of Education written by Good (1973), knowledge is defined as facts, rules, or details absorbed and accumulated by the individual.

Chawal Pratsakul (1983) proposed that knowledge is facts, details, or acts accumulated over time within each individual, and it has been transferred from the past so that that individual can learn from it.

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Pisarn Wangpanich (1983) defined the knowledge as facts or details, acts, and experiences accumulated by a person.

Rattikorn Jongwisarn (1992) perceived knowledge as rules, facts, or any other information accumulated through time in the form of memory.

Supak Rapepan (1994) defined knowledge as data or information stored in the memory, which can be recalled and used for decision making.

Sanaei Niyomthai (1992) stated that knowledge is any facts, rules, or details of particular subjects each individual has gained through his/her learning experience.

Conclusion from all definitions above is that knowledge is information or details accumulatively stored within individual's memory, and it can be retrieved for later use.

Bloom and team (as referred by Pattra Nikmanon, 1989) had studied and classified Cognitive Domain into 6 levels, in ascending order, as follows

1. Knowledge is the ability to recall a matter that an individual had had experience with, either from the classroom or from outside the classroom (radio, TV, newspaper, etc.).

2. Comprehension is the ability to translate, understand, grab an idea, and augment the meaning of a particular subject.

3. Application is the ability to apply knowledge for solving new problems.

4. Analysis is the ability to collect and process data in order to reach clear-cut ideas or to find hidden facts behind the subject considered

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5. Synthesis is the ability to collect data/information, and combine that data to create a new subject having a new structure or quality.

6. Evaluation is a systematic assessment process. Results from evaluation process can identify the quality of an issue being examined.

Knowledge measurement

To measure how much knowledge a person possess, we can accomplish this by establishing question sets with details on contents, utilized method or the summary of subject concerned. Request participants to answer these questions; if their answers are correct, those respondents with correct answers are considered knowledgeable in the subject. If a respondent fails to answer correctly, either due to forgetting relevant knowledge or choosing wrong answers, it is assumed that said respondent does not have knowledge on that particular subject. In sum, a knowledgeable individual must be able to recall subject that comprises 3 parts - contents, used methods and the summary of a subject (Chawal Pratsakul, 1983).

In addition, measurement of knowledge or memory is the assessment of recall ability, regarding facts or experience gained from training, learning or living. Questions to assess a person's knowledge can be divided into three main categories (Pisarn Wangpanij, 1983).

1. *Questions on the subject contents, details, and facts* Questions are usually related to definitions, vocabulary, rules, details, etc.

2. *Questions on procedures and process* this type of questions ask knowledge concerning conducting process, Standard Operating Procedures, relevant processes, classifications, and rules.

3. *Questions on summarized knowledge* this type of question wants to test how well a person can remember conclusions or principles made from a combination of several components.

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2.1.2 Knowledge Base

Wisalinee Pipithakul (2005) stated that Knowledge source could be from known theories or concepts already proved, or from personal experience accumulated throughout time.

Knowledge development or Constructivism is the concept for learning process, well suited for preparing human resource in the 21st century (Sowanee Seriya, 1996). It is a continuing learning process; learner creates his own knowledge base from collecting and modifying information around him to determine way to explain his questioned subject (s). This method helps strengthen the relationship between teacher and student. Environment has a great influence to the learning process. Results obtained from this method are solutions of complex questions originally considered.

2.1.3 Maslow's Hierarchical Theory of Motivation Abraham

Maslow stated that all human behaviors are the results of his/her own motivation; Different motivations cause different personal behaviors. Human Motivation, ranked from the lowest to the highest, has 5 classes; First motivation must be met satisfactorily before moving to higher ones – a process of development.

Need 5 Self Actualization (Fulfillment) Needs such as purpose, personal growth and realization of potentials. This is the point where people become fully functional, acting purely on their own volition and having a healthy personality.

Need 4 Ego (Self esteem) Needs such as healthy pride The Ego needs focus on our need for self-respect, and respect from others.

Need 3 Social (Love and Belongingness) Needs such as the love of family and friends.

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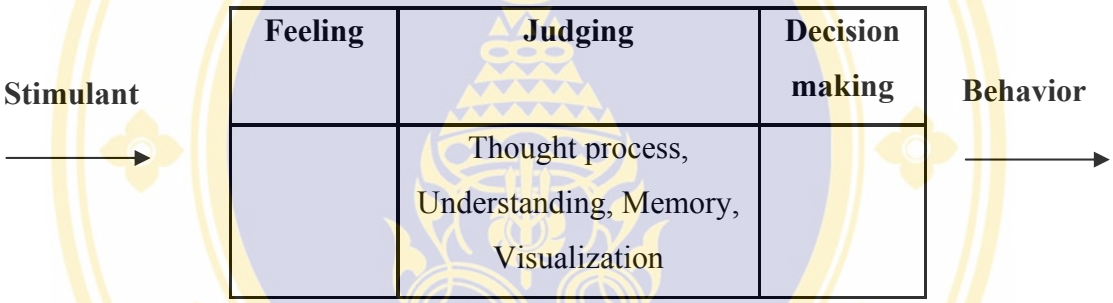
Need 2 Security (Safety) Needs such as living in a safe area away from threats. This level is more likely to be found in children as they have a greater need to feel safe

Need 1 Body (Physiological) Needs such as air, warmth, food, sleep, stimulation and activity. This need concerns biological balance and stable equilibrium (homeostasis). These needs can be very strong because if deprived over time, the person will die.



In learning process, awareness lies between stimulus and response. Awareness occurs from

1. Stimulus (sight, smell and sound)
2. Sense Organs (ears, eyes, nose, skin)
3. Accumulated personal experience through time
4. Interpretation after touching the object

In order to educate general people more on indirect health effects from cigarette smoke, there must be an extensive advertisement and public relations through the mass media. Targeted group can receive information and retain that message as intended.

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2.2 Types of Addictive Drugs

Prolonged consumption of certain drugs may not cause addiction, which differs from general addictive drug in that once addictive substance entering human body, it may cause a drug taker to feel pleasant, exhilarated, relaxed, happy etc, resulting in drug addiction, or even permanent addiction.

At present, there are more than a hundred types of addictive drugs. According to the Ministry of Health's announcement, there are 151 harmful, addictive drugs, including 108 Toxic substances from 4 categories (a total of 259). Addictive drugs can be classified in accordance with the followings.

2.2.1 By the source of origin

1) Natural source Addictive drug is extracted from plants such as Morphine, Opium, and Marijuana etc.

2) Synthesis This type of drugs is made from chemical process, and it can present the same effects as drugs from natural source. Synthesized drugs include Heroine, Amphetamine etc.

2.2.2 According to the Drugs Act of 1980 There are 5 categories

Category 1 Seriously harmful drugs such as heroin, amphetamine, ecstasy, and LSD.

Category 2 Harmful, addictive drugs such as Morphine, cocaine, and Opium

Category 3 Medication; but this type of drugs contains addictive ingredients such as cocaine mixed with anti-cough medicine

Category 4 Substances used in the production of harmful addictive drugs such as Acetic Anhydride, Acetylchloride

Category 5 Other addictive materials not classified in type 1 to 4 above, such as marijuana, Magic Mashroom

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2.2.3 According to the law

1) Legal Antitussive, cigarette, liquors, coffee, etc.

2) Illegal

- *Harmful drugs* Morphine, Opium, and Marihuana
- *Toxic substances* such as Secobarbital, Pemoline, Ephedrine
- *Inhalant* such as Glue

2.2.4 By the effects Psychological system There are four types;

1) Nerve-suppressing drugs; Drugs suppressing nervous systems such as Opium, Morphine and Heroine are highly addictive. Physician can use certain type of these substances for killing pain after operation, or during the last stage of cancer. Nerve-suppressing drugs can relieve pain, directly affecting central nervous system (sensory parts).

2) Nervous system stimulant drugs such as Cocaine, Ephedrine, and Ecstasy Doctor Uses drug from this category to treat patients with drowsiness, resulting in stimulating nervous systems and alertness.

3) Hallucinatory drugs; Effects from this type of drug include distortion in sight, hearing, tasting, feel, and smelling. Addict may experience hallucinatory effects. In case of strong side effects, an addict can experience psychosis.

4) Drugs causing mixed effects; Early symptoms among addicts are the great pleasure, talkativeness, alertness, and laughter's. In the extreme case (consuming large amount of these drugs), these drugs will consequently causes hallucination, sleepiness, paranoia and anxieties.

2.3 Cigarette (From Wikipedia, the free encyclopedia)

A cigarette is a product manufactured out of cured and finely cut tobacco leaves, which are rolled or stuffed into a paper-wrapped cylinder (generally less than 120 mm in length and 10 mm in diameter). In recent years, the tax policies of

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governments has led to the practice of using not just the leaves, but the plant stem also. The stem is first crushed and cut to resemble the leaf before being merged or blended into the cut leaf. The cigarette is ignited at one end and allowed to smolder for the purpose of inhalation of its smoke from the other (usually filtered) end, which is usually inserted in the mouth. They are sometimes smoked with a cigarette holder. The term cigarette, as commonly used, refers to a tobacco cigarette but can apply to similar devices containing other herbs, such as cannabis.

A cigarette is distinguished from a cigar by its smaller size (hence the name), use of processed leaf, and white paper wrapping; cigars are typically composed entirely of whole leaf tobacco. Cigarettes were largely unknown in the English-speaking world before the Crimean War, when British soldiers began emulating their Ottoman Turkish comrades, who resorted to rolling their tobacco with newsprint.

History

The cigarette was named some time in the 18th century: beggars in Seville began to pick from the ground the cigar ends left by the *señoritos* (rich young men), wrapped the tobacco remains with paper and smoked them. The first attested use in this habit can be seen in three 18th century paintings by Francisco de Goya: *La cometa* (The kite), *La merienda en el Manzanares* (Picnic by the river Manzanares) and *El juego de la pelota a pala* (The ball and paddle game).

The use of tobacco in cigarette form became increasingly popular during and after the Crimean War. This was helped by the development of tobaccos that are suitable for cigarette use. During World War I and World War II, cigarettes were rationed to soldiers. During the second half of the 20th century, the adverse health effects of cigarettes started to become widely known and text-only health warnings became commonplace on cigarette packets. The United States has not yet implemented graphics-based cigarette warning labels, which is considered a more effective method to communicate to the public the dangers of cigarette smoking. Canada and Australia, however, have both textual warnings and graphic visual

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images displaying, among other things, the damaging effects tobacco use has on the human body.

The cigarette has evolved much since its conception; for example, the thin bands that travel transverse to the "axis of smoking" (thus forming circles along the length of the cigarette) are alternate sections of thin and thick paper to facilitate effective burning when being drawn, and retard burning when at rest. Synthetic particulate filters remove some of the tar before it reaches the smoke

Manufacturing

Commercially manufactured cigarettes are relatively simple objects consisting mainly of a tobacco blend, paper, PVA glue, and often also a cellulose acetate based filter. While the assembly of cigarettes is straightforward, much focus is given to the creation of each of the components, in particular, the tobacco blend.

Paper

The paper for holding the tobacco blend may vary in porosity to allow ventilation of the burning ember or contain materials that controls the burning rate of the cigarette and stability of the produced ash. The papers used in tipping the cigarette (forming the mouthpiece) and surrounding the filter stabilizes the mouthpiece from saliva and moderates the burning of the cigarette as well as the delivery of smoke with presence of one or two rows of small laser-drilled air holes.

Tobacco blend

The process of blending, like the blending of scotch and cognac, gives the end product a consistent taste from batches of tobacco grown in different areas of a country that may change in flavour profile from year to year due to different environmental conditions.

Modern cigarettes produced after the 1950s are composed mainly of shredded tobacco leaf and their processing by-products. Each cigarette's tobacco

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blend is made mainly from the leaves of *flue-cured brightleaf*, *burley tobacco*, and *oriental tobacco*. These leaves are selected, processed, and aged prior to blending and filling. The processing of brightleaf and burley tobaccos for tobacco leaf "strips" produces several by-products such as leaf stems, tobacco dust, and tobacco leaf pieces ("small laminate"). To improve the economics of producing cigarettes, these by-products are processed on the side into forms where they can then be added back into the cigarette blend without an apparent or marked change in the cigarette's quality. The most common tobacco by-products include:

- *Blended leaf (BL) sheet*: A thin dry sheet cast from a paste made with tobacco dust collected from tobacco stemming, finely milled Burley leaf stem, and pectin.

- *Reconstituted leaf (RL) sheet*: A paper like material made from tobacco stems and "class tobacco", which consists of tobacco particles less than 30 mesh in size (~0.599 mm) that is collected at any stage of tobacco processing. RL is made by extracting the soluble chemicals in the tobacco by-products, processing the left-over tobacco fibres from the extraction into a paper, and then reapplying the extracted materials in concentrated form onto the paper in a fashion similar to what is done in paper sizing

- *Expanded (ES) or Improved stems (IS)*: ES are rolled, flattened, and shredded leaf stems are expanded by being soaked in water and rapidly heated. Improved stems follow the same process but are simply steamed after shredding. Both produces are then dried. These two products look similar in appearance but are different in taste

Whole tobacco can also be processed into a product called *Expanded tobacco*. The tobacco is "puffed", or expanded, by saturating it with Supercritical carbon dioxide and heating the CO_2 saturated tobacco to quickly evaporate the CO_2. This quick change of physical state by the CO_2 causes the tobacco to expand in a

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similar fashion as Polystyrene foam. This is used to produce light cigarettes by reducing the density of the tobacco and thus maintain the size of a cigarette while reducing the amount of tobacco used in each cigarette.

A recipe specified combination of bright-leaf, burley and oriental leaf tobacco with be mixed with humectants such as propylene glycol or glycerol, as well as flavouring products and enhancers such as cocoa, licorice, tobacco exttracts, and various sugars, which are known collectively as "*casings*". The leaf tobacco will then be shredded, along with a specified amount of *small laminate*, *expanded tobacco*, *BL*, *RL*, *ES*, and *IS*. A perfume-like flavour/fragrance, know as "*toppings*", which is most often formulated by flavor companies, will then be blended into the tobacco mixture to improve the consistency in flavour and taste of the cigarettes associated with a certain brand name. As well, they replace lost flavours due to the repeated wetting and drying used in processing the tobacco. Finally the tobacco mixture will be filled into cigarettes tubes and packaged.

Sale

Before the Second World War many manufacturers gave away collectible cards, one in each packet of cigarettes. This practice was discontinued to save paper during the war and was never generally reintroduced, though for a number of years Natural American Spirit cigarettes included "vignette" cards depicting endangered animals and American historical events; this series was discontinued in 2003. On April 1, 1970 President Richard Nixon signed the Public Health Cigarette Smoking Act into law, banning cigarette advertisements on television in the United States starting on January 2, 1971. However some tobacco companies attempted to circumvent the ban by marketing new brands of cigarettes as "little cigars"; examples included Tijuana Smalls, which came out almost immediately after the ban took effect, and Backwoods Smokes, which reached the market in the winter of 1973–1974 and whose ads used the slogan, "How can anything that looks so wild taste so mild."

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Beginning on April 1, 1998, the sale of cigarettes and other tobacco products to people under 18 is now prohibited by law in all fifty states of the United States. The legal age of purchase has been additionally raised to 19 in Alabama, Alaska, New Jersey, Utah, and Nassau, Suffolk, and Onondaga Counties in New York. Legislation was pending as of 2004 in some other states, including California to raise the age to 19 or even to 21. In Massachusetts, parents and guardians are allowed to give cigarettes to minors, but sales to minors are prohibited.

Similar laws exist in many other countries. In Canada, most of the provinces require smokers to be 19 years of age to purchase cigarettes (except for Quebec, Saskatchewan, Manitoba and Alberta, where the age is 18). However, the minimum age only concerns the purchase of tobacco, not use. Alberta, however, does have a law which prohibits the possession or use of tobacco products by all persons under 18, punishable by a $100 fine. Australia and Pakistan have a nationwide ban on the selling of all tobacco products to people under the age of 18.

In the UK, cigarettes can legally be sold only to people aged 16 and over. However it is not illegal for people under this age to buy (or attempt to buy) cigarettes, which means that only the retailer is breaking the law by selling to people under the age of 16. From October 2007 in England and Wales, the legal purchase age will rise to 18 — in line with alcohol — in an attempt to increase public health. Scotland and Northern Ireland will probably follow suit.

Most countries in the world have a legal smoking age of 18. Five exceptions are Switzerland, Austria, Germany, Great Britain, and The Netherlands, where the age is 16. Surprisingly in Turkey, which has one of the highest percentage of smokers in its population, has a legal age of 18. Another curiosity is Japan, one of the highest tobacco consuming nations, which requires purchasers to be 20 years of age (Suffrage in Japan is 20 years old. However, due to the prevalence of cigarette vending machines in the most public of places the effectiveness of an underage ban is in doubt. In other countries, such as Egypt and India it is legal to use and purchase tobacco products regardless of age.

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Some police departments in the United States occasionally send an underaged teenager into a store where cigarettes are sold, and have the teen attempt to purchase cigarettes, with or without a "fake" ID. If the vendor then completes the sale, the store is issued a fine. Similar enforcement practices are regularly performed by Trading Standards Officers in the UK.

Online cigarette stores

Online stores have recently appeared that offer foreign cigarettes to internet buyers. As many jurisdictions place high taxes on tobacco sales, these could be seen as an effort to avoid paying duty or taxes. Counties and cities may impose an additional tax on a pack of cigarettes in AL, $0.01 to $0.06; IL, $0.10 to $0.15; MO, $0.04 to $0.07; NYC $1.50; TN, $0.1; TX $1.41; and VA, $0.02 to $0.15. The following states have the highest state excise tax rates: Alaska, Washington, New Jersey, Michigan, Maine, etc.

Some online cigarette stores exist to sell tax-free cigarettes inside their own country as well. The legality of these stores is being questioned currently in the United States. Federal lawmakers contend that these stores are clear tax evasions. Recently in Michigan, several online stores have been subpoenaed by the state for the names and addresses of customers. The state has reportedly been sending out fines for each package purchased, contending tax evasion over Michigan's $2-a-pack law. A recent law in Michigan offers a $100 reward for turning in persons who purchase cigarettes online.

This same action has also taken place in Wisconsin after the Wisconsin Department of Revenue received a list of several thousand buyers in that state from an online cigarette merchant. However, the effort to collect on the taxes from the listed residents was stopped by order of Governor Jim Doyle a few days later.

What complicates this issue is that many online tobacco shops are owned by Native Americans and these stores are located on Native American territory. The

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Native Americans believe that they have the right of self-taxation. Federally recognized tribes have treaties giving them control over their tribal land and exempting the tribes from collecting and paying out federal sales tax on products sold on their land, including those sold over the Internet from tribal lands. Smoke shops located on tribal lands often sell tobacco products over the Internet after verification that a customer is over 18 or 21, depending on the legal age for tobacco sales in the state.

MasterCard and American Express have refused to allow online cigarette stores to accept payment by credit-card.

Philip Morris Inc., USA fights against selling cigarettes online. PM is concerned about trademark infringement, age verification, domestic taxation of their licensed tobacco products available through mail-order from duty-free shops overseas, and losing market share to low-priced generic cigarette brands available on the Internet. Philip Morris took possession of the web domain Yesmoke.com, and claimed damages worth $548 million (US) in compensation for Yesmoke's sale of PM's Marlboro cigarette brand. $548 million is the highest request ever in the history of United States legislation, for compensation for the alleged offence of Copyright Infringement and Unfair Competition. It was later decided that 548 million dollars was a disproportionate request that Yesmoke would never be able to pay. The judge, Gerard E. Lynch of the Southern District of New York, on March 11, 2005, lowered the sum to be paid to Philip Morris to $173 million.

Smoking has been linked to lung cancer by medical research institutions throughout the world (through the use of observational studies). Smoking men are 22 times more likely to die from lung cancer than non-smoking men and smoking women are 12 times more likely to die from lung cancer than non-smoking women. Cigarette smoking increases the risk for many types of cancer, including cancers of the lip, oral cavity, and pharynx; oesophagus; pancreas; larynx (voice box); lung; breast; uterine cervix; urinary bladder; and kidney. Recent findings by the World

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Health Organization suggest that U.S. white male smokers have an 8% chance of acquiring lung cancer at some point in their lives, as opposed to the 2% chance of acquiring lung cancer among U.S. white male non-smokers. Women, more susteptible than men to lung cancer, have higher percentages

Certain other lung disorders, like emphysema, are also linked to cigarette smoking. Smoking during pregnancy increases the risk of miscarriage, underweight, and deformed infants. Smoking also increases the chance of heart attacks and a variety of cancers.

Nicotine, the stimulant and active ingredient in cigarettes, is highly addictive. Children and pets who eat tobacco or tobacco remnants may be poisoned by Nicotine.

For many years the tobacco industry presented research of its own in an attempt to counter emerging medical research about the addictive nature and adverse health effects of cigarettes. According to a 1994 prosecution memo written by Congressman Martin Meehan to former U.S. Attorney General Janet Reno, many of these studies were found to be flawed due to their strong bias and poor methodology. A 2001 peer-reviewed article in the *American Journal of Public Health* accuses tobacco companies of using front groups and biased studies to downplay the health risks of smoking and secondhand smoke.

Carcinogens

There are 4000 chemicals and 43 of which are known as carcinogenic compounds in cigarettes. A current anti-smoking PIF in the U.K. "Where there's smoke, there's Poison" shows people who work with these talking about the hazards assosciated with various chemicals before they are told they're all in cigarettes. The following are some of the most potent carcinogens:

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- **Benzopyrene** is a highly carcinogenic and mutagenic compound which is formed during the incomplete combustion of organic matter. Tobacco manufacturers have experimented with combustionless vaporizer technology to allow cigarettes to be consumed without the formation of carcinogenic benzopyrenes.

- **Nitrosamine** is a carcinogenic compound found in cigarette smoke but not in uncured tobacco leaves. Nitrosamine forms on flue-cured tobacco leaves during the curing process through a chemical reaction between nicotine and other compounds contained in the uncured leaf and various oxides of nitrogen found in all combustion gases. However, switching to indirect-fire curing has been shown to reduce nitrosamine to undetectable levels (less than 0.1 part per million).

Radioisotopes

Radioisotopes from the radon decay sequence are an oft cited but disputed cause of cigarette-induced lung cancers. In particular, the radioisotope polonium-210 has been measured in cigarette smoke at levels of 0.0263 - 0.036 pCi . Polonium-210, an alpha emitter, has been identified by the United States Environmental Protection Agency as a cause of lung cancer in humans when inhaled, and is also a causal agent for diseases such as liver and bladder cancer, stomach ulcers, leukemia, cirrhosis of the liver, and cardiovascular disease. Furthermore, the majority of cigarette-induced lung cancers are adenocarcinomas, which are characteristic of the type of damage produced by alpha particle radiation such as that of polonium-210.

In 1982, Winters et al. published a paper in the New England Journal of Medicine which showed skeletons of cigarette smokers contained deposits of lead-210 and polonium-210. In 1983, NCAR radiochemist Ed Martell published a paper in which he experimentally calculated that smokers who die of lung cancer have been exposed to 80-100 rads (0.8 to 1 Gy) of radiation. Former United States Surgeon General C. Everett Koop cited radioisotopes in cigarette smoke as being responsible for 90 percent of smoking-related deaths. The presence of radioactivity in cigarette smoke was used by Koop and other government officials to justify banning smoking from US-bound commercial airline flights.

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Other studies suggest there is no correlation between levels of radioisotopes and smoking-related cancers, noting there are not enough Polonium-210 compounds in cigarette smoke to significantly impact lung cancer in smokers. (Bogden *et al*., 1981; Hecht, 1999; Hecht 1999 is a review which cites)

Consumption

Approximately 5.5 trillion cigarettes are produced globally each year by the tobacco industry, smoked by over 1.1 billion people, which is more than 1/6 of the world's total population.

Smoking Prevalence by Gender		
	Percent Smoking	
Region	Men	Women
Africa	29	4
United States	35	22
Eastern Mediterranean	35	4
Europe	46	26
Southeast Asia	44	4
Western Pacific	60	8

(2000, World Health Organization estimates)

Smoking bans

Ireland

Ireland became the first European country to institute an outright ban on smoking in workplaces on 29 March 2004. From that date onwards, under the *Public Health (Tobacco) Acts*, it has been illegal to smoke in all enclosed workplaces. This includes bars, restaurants, offices and public buildings. The maximum on-the-spot fine is €3000.

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New Zealand

The 2004 ban on smoking in bars and restaurants in New Zealand met with initial resentment from some bar owners, but was widely welcomed by the public at large.

Norway

In Norway, smoking has been banned in restaurants, bars and cafes since 1 June 2004.

Italy

In Italy, since 10 January 2005, it has been strictly forbidden to smoke in public enclosed spaces, except for dedicated areas.

Sweden

In Sweden, smoking was banned in restaurants, cafes, bars and nightclubs in June 2005.

Uruguay

In March 2006, it became illegal in Uruguay to smoke in enclosed public spaces. Now bars, restaurants or offices where people are caught smoking face fines of more than $1,100 or a three-day closure.

An estimated 5,000 people died every year in Uruguay from smoking-related diseases, according to official figures.

President Tabare Vazquez, a practicing oncologist, was the impetus behind the government-decreed measure, which is among the world's toughest and is similar to bans already in place in Ireland, Sweden, Norway and Spain.

This makes Uruguay the first country in South America to ban smoking in enclosed public spaces

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Queensland

Similar measures to those introduced in New Zealand were successful in the Australian state of Queensland in July, 2006.

Scotland

On March 26, 2006, Scotland prohibited smoking in enclosed (more than 50% covered) public places, which includes public buildings, workplaces, sports stadiums, bars and restaurants. Exemptions are in place to allow hotel guests to smoke in their own rooms. Unusually the law also bans smoking in bus shelters, phone boxes or other shelters that are more than 50% enclosed. It also prohibits smoking in trucks and vans which are owned by a company whether or not the driver is the only person inside. In common with the response in New Zealand, the ban has been criticized by certain publicans, cafes and bingo halls who claim that it is hurting sales and business, but this matter is contested by others who report increased sales. Public support in Scotland is in clear favour of the ban, and adherence is widespread. It is reported that the National Heath Service in Scotland's Quit Smoking Line, has received an additional 50,000 calls from people wishing to give up in the 6 months since the ban was introduced.

Wales

Smoking will be banned in workplaces in Wales from April 2nd 2007.

Northern Ireland

Smoking will be banned in workplaces in Northern Ireland from 30th 2007.

England

Smoking will be banned in workplaces in England from July 1st 2007.

United States

In the United States, the question of smoking is determined at the state level, and not by the federal government; therefore, smoking policies are instituted on a state-by-state basis.

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In New York City, smoking is forbidden in almost all workplaces, although in rare cases this ban is not enforced in some small neighborhood bars, establishments caught allowing smoking face stiff fines. It is now commonplace for restaurants to ban smoking even in their outside seating areas, or near entrances, relegating most smokers to street corners or in front of private residences. Ironically, much like the illicit trade of alcohol during Prohibition, there is a growing underground market for cigarettes in New York, mainly facilitated through street sales and the internet. Following this trend, smoking is quickly being banned in restaurants and bars all across the USA. States from California to Delaware have adopted such a ban. Such bans are least popular in Southern states of the USA, such as Virginia, Tennessee, and North Carolina, where tobacco continues to be a large part of the economy. In other states, these bans are popular with anti-smokers who see them as long overdue. Often smoking is allowed on the street (though in Delaware you must be 250 feet away from any public building).

In 2004, smoking was outlawed in all public buildings in the state of Maine. In December 2005, it became illegal in Washington State to smoke inside a public building and within 25 feet of an entrance, window, or vent. In April 2006, it became illegal in the state of New Jersey to smoke in enclosed public spaces (for example, bars, restaurants or offices) with the exception of a casino floor. A similar ban is in effect in the states of New York and Florida as well, in addition to the cities of Philadelphia and Columbus.

In 2005, it became illegal to smoke in public bars and restaurants in Hennepin and Ramsey counties (Minneapolis/Saint Paul) of Minnesota.

In 2006, Tuscaloosa County, home of the University of Alabama, made it illegal to smoke in any public place such as restaurants, bars, and clubs. Though a law as of now, there is still a debate on this issue in Tuscaloosa County. This did not pass and it is still lawful to smoke in a bar.

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In January 2006, Georgia passed a smoking ban, which prohibits smoking inside any restaurant that serves customers under the age of 18; this law does not apply to bars and clubs.

It is currently illegal to smoke in any public building, including restaurants, in Houston, Texas. As of September 2007, this ban will be extended to all bars.

In November 2006, Dayton, Ohio elected to ban all public smoking, including restaurants and bars.

Cigarette advertising

In many parts of the world tobacco advertising and even sponsorship of sporting events is not allowed. The ban on tobacco advertising and sponsorship in the EU in 2005 has prompted the Formula One Management to look for races in areas that allow the heavily tobacco sponsored teams to display their livery, and has also led to some of the more popular races on the calendar being cancelled in favour of more tobacco friendly markets. However pressure from fans has seen these decisions reversed, and Grand Prix such as the Belgian Grand Prix have re-appeared on the calendar.

2.4 Knowledge on Cigarette

2.4.1 Lethal substances in cigarettes

Cigarette smoke is a combination of more than 4,000 chemical substances; some of them affect the functioning of human organs; some causes defective cells, or even cancers. Currently, there are more than 40 cancer-causing substances in cigarette smoke. Some of the most harmful substances are (Prakit Vateesatokkij, 1995; Banjob Choonhasawaskul, 2000; Tobacco Consumption Control Institute, 1995);

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1. Nicotine, found naturally in tobacco, is the main substance causing addiction. At the first stage, harmful substance from Nicotine would affect the brain and the central nervous system. At the later stage adverse effect will be shown as neurological suppression. About 95% of Nicotine is found in lung, some are remained at lip, and some are absorbed into blood stream, causing Epinephrine release, including high blood pressure, rapid or uneven heart beat, contraction of arm and leg arteries, and high fat level in blood vessels.

Nicotine can pass through lung and flow into blood and the brain respectively within 6 seconds. When Nicotine level in blood lowers, a smoker will have an instant desire for cigarettes after having smoked for a certain period of time.

2. Tar Tar is actually the oil produced from the burning of tobacco. Liquid like, tough, and dark-brown color, Tar comprises several cancer-causing substances; cancer can be found at lung and other organs. 50% of Tar will go to the lungs, irritating neck, lung, and respiratory track, which is the cause of chronic cough, dyspnea, and COPD. Standard acceptable Tar level is 15 mg/cigarette, but cigarettes sold in Thailand generally have Tar between 25 – 34 mg/cigarette.

3. Carbon Monoxide (CO) This lethal gas is a result of incomplete burning. CO can attach to Hemoglobin at a faster rate than Oxygen does, resulting in inadequate blood to feed body organs. Health effects from CO are dizziness, exhaustion, fainting, loss of consciousness or even death if CO amount in blood is more than 30%. CO greater than 60% can cause death. Carbon Monoxide can also cause artery thrombosis.

4. Hydrogen cyanite This is a gas able to destroy mucosa of upper respiratory tract, and causes body weakness, including chronic cough.

5. Nitrogendioxide (NO2) NO2 is a hazardous gas that can destroy bronchiol and alveolar mucosa, causes thin alveolar wall and COPD. Swollen alveoli

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can press good part of lungs, resulting in less amount of inhaled Oxygen flowing into lung.

6. Ammonia; Ammonia can irritate tissues, eye and nose, and cause bronchitis, cough and secretion. Moreover, Ammonia can increase rate of nicotine absorption.

7. Radioactive substance such as polonium-210 This substance emits Alpha particles which cause lung cancer. These hazadous particles can possibly be inhaled by nearby nonsmokers.

8. Other irritating substances Such as Mercury, formaldehyde, etc.

Modern cigarettes contain specifically-purposed substances such as additives for enhancing sweetness and taste of tobacco, and stimulating pleasure in a person trying the cigarette for the first time. Other substances can be added to cigarettes as well. Details on this matter can be found in a website (http://www.ashthailand.or.th/home.htm). It is apparent that cigarette producers have used many additives without concerns over smokers' health.

2.4.2 Smoking Hazards

WHO designated the year 1980 as the beginning of anti-smoking campaign. This effort has continued until today. WHO has also made public interesting information concerning smoking (http://www.ashthailand.or.th/home.htm), which is presented below.

1. The Dangers of Smoking

Research data indicates that smoking is the main course of several diseases, especially a lethal lung cancer, COPD (Chronic Obstructive Pulmonary Disease), and coronary artery thrombosis, including cancers in various body organs. WHO reported that (Tobacco consumption Control Institute, 2000:

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http://www.ashthailand.or.th/home.htm) four million people die from smoking each year, or 11,000 per day. It is predicted that global deaths due to smoking-related illnesses will increase to 10 million/year within the next 20 years. Relevant statistics confirm the relation between smoking and diseases as described below.

1.1 Cancer; Lung cancer is most frequently found. The chance of developing lung cancer among smokers is 20 times higher than nonsmokers' (depending on consumed cigarette/day, smoking habits, and smoking duration). And the chance of finding mouth cancer among smokers is 5 times higher. Moreover, smokers are vulnerable to cancers at the voice box, esophagus, bladder, pancreas, kidney, and stomach. Quitting smoking will help reduce the death rate. All smokers have a high risk of lung cancer, oral cancer, regardless of types of cigarette consumed. Nicotine is always fond in all smokers.

1.2 Cardiovascular Diseases: Smoking increases the amount of amino acid in plasma, causing the higher rate of cardiovascular disease. Recent researches reported that the number one cause of death among smokers is acute myocardial infarction because Nicotine effects cause arterial thrombosis.

1.3 Respiratory diseases: Cigarette smoke causes irritation on Mucosa of respiratory tract, as well as cough, Dyspnea, exhaustion, and large amount of sputum. More over, there is 70% of chance that Bronchitis and COPD (Chronic Obstructive Pulmonary Disease) will develop among heavy smokers. The more we smoke, the greater risk diseases will develop. Patients may suffer from permanent breathing difficulties. Heavy smokers who quit smoking may have chronic cough and small amount of sputum. For those with chronic Bronchitis and COPD (Chronic Obstructive Pulmonary Disease), their symptoms will insignificantly improve. But for young smokers, their lung functioning will be recovered to normal level after quitting smoking.

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1.4 Gastrointestinal problems: Smoking causes the stomach to release more gastric acid. As a result, smokers have a higher chance of gastric and small intestine ulcers. The chance of death from gastric ulcer is 2.9 times greater than that among nonsmokers, so as the chance of gastric bleeding. Smoking will reduce the amount of gastric acid released from small intestine and pancrease, resulting in indigestion, bloating, refluxed esophagitis, dyspepsia, and epigastrium. In addition, when compared with nonsmoker, a smoker will be 2-4 times more likely to develop esophageal and colon cancer.

1.5 Effects to the reproductive system; Heavily smoking women are likely to reach the menopause faster than usual, and it takes longer to be able to get pregnant again. During pregnancy, a smoking woman may experience reduced placental circulation, resulting in a chance of preterm abortion or low weight baby. In men, clogging of blood vessels around the sexual organ can decrease sexual potency.

1.6 Effects on gum and teeth; Cigarette smokers will have a higher chance of gum and teeth diseases than nonsmokers. Heavy smoker's teeth will usually turn brown. As for frequent smokers, smoking can cause black teeth, bad breathe and tooth decay.

2. Adverse health consequences in nearby people

Cigarette smoke exhaled from a smoker can harm nearby people as well. Smoke from the burning end of cigarettes has a higher concentration of lethal substances than smoke exhaled directly from the same smoker. This is because the latter has less quantity of harmful substances than smoke from burning end of cigarette because a large portion of harmful substances has already been absorbed by smoker's lung. Consequently, nonsmokers inhaling cigarette smoke into their lungs will have the chance that adverse health effects could develop as described below.

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2.1 To children; Cigarette smoke may cause the increase rate of Bronchitis and Pneumonia in children. These adverse consequences can follow them to their juvenile and adult age. According to medical researches, Nicotine was found in saliva and urine taken from children who live with smoking parents (Banjob, 2000).

2.2 To pregnant women; Cigarette smoke can affect the fetus in pregnant women, resulting in abortion or pre-term labor, intrapartum or postpartum Hemorrhage, Placenta Previa, and Placenta abruption. Newborn infant would face risks of low birth weight and brain retardation.

2.3 To general people; Adverse health effects on general people include eye irritations, headache, stuffed nose and asthma. For individual with asthma, heart disease, Bronchitis, conditions may deteriorate upon exposure to cigarette smoke.

From above information, nonsmokers exposed to secondhand smoke inhale Nicotine and other compounds as smokers do. Therefore smokers must be well aware of the negative consequences from smoking that may affect others.

3. Smoking Vs. Economy and Society

Currently, there are approximate 12 million smokers in Thailand – one fifth of the nation's population. These smokers can fall ill from smoking-caused diseases such as Heart disease, Vascular disease, Cancer, COPD (Chronic Obstructive Pulmonary Disease), etc. that require them to receive medical treatment. The consequence is that patients and their families, including the government must pay a large amount of money for medical expenses.

4. Smoking Vs. Environment

Cigarette smoke directly contributes to polluted air, especially in the crowd area, resulting in unwanted health problems. It may be possible that smoking can accidentally set fire, creating damages to property and lives.

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2.4.3 Benefits of quitting smoking

1. Increased self confidence, good personal appearance

Cigarette smoke not only causes undesirable body smell, bad breathe and yellow teeth, but also causes deep wrinkles. This could seriously reduce self confidence and personal appearance.

2. Cigarette smoke can damage health of family members, especially children.

According to medical reports, cigarette smoke is harmful to everyone exposed to it, especially children living closely with a smoker. Adverse health effects include respiratory diseases such as Asthma, Pneumonia and cold.

3. Being a bad role model to young children

If a child and smoker live in the same family, that child will have a higher chance of smoking than children not living with person who smokes, and tends to associate with smoking friends.

4. Absence of diseases caused by cigarette smoke

More than 4,000 chemical substances can be found in cigarette smoke, and 60 of them can potentially cause cancer. From medical reports worldwide, smoking can cause cancers, lung and heart disease, especially clogged Heart Arteries and COPD.

5. Long life expectancy

Currently, about 13,700 people die per day from smoking, or 5 millions per year. In Thailand, the number is 142 per day (52,000 death per year). More than half of them died before 65 years old.

6. Money saving

Obviously, stopping smoking could save money up to 1,000 Baht or more.

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2.5 Relevant Smoking Laws

2.5.1 Tobacco Control Act has the following details.

1. Prohibit cigarette sales to minors below 18 years old.

2. Forbid Tobacco advertising and sales promotions.

3. Prohibit cigarette sales through a machine.

4. Forbid the sale of goods that comes with giveaway cigarettes.

5. In a similar manner, forbid the sale of cigarettes that comes with free products considered as free giveaways.

6. Prohibit an exchange or trade of cigarette case for special privilege (i.e., a free ticket for entering show/competitions).

7. Prohibit the giveaway of cigarette as free sample products.

8. Prohibit the advertising of cigarette or products showing cigarette brand name through printed press, radio, and television. And impose the ban on showing cigarette trademark during shows or competitions.

Except Live broadcasting programs sent from overseas (Radio, Television, Printed advertisement), which are not intended for sale in Thailand.

9. Prohibit advertising any product that has the same brand name as known cigarette brand, which can be misunderstood by the public.

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10. Prohibit the production of goods that look similar in appearance to real cigarettes, for sale, giveaway, or advertising.

11. Cigarette sold or produced in Thailand must contain ingredients as listed in Thailand's Ministry of Health's standard.

- Cigarette producers or importers must declare cigarette ingredients to the Ministry of Health as required by law.
- Cigarette brand that does not meet established ingredient standard cannot be sold or imported into Thailand.

And statements in section 12-13 describe;

12. Cigarettes either produced locally or externally, must have a warning label printed on the front and back of cigarette case and packages.

13. Forbid the sale of cigarettes that has no warning labels on the cigarette case.

2.5.2 Public Health Cigarette Smoking Act designates the followings as "No smoking zones".

1. The followings are strictly designated as "No Smoking" areas.

Bus, Hired vehicle, Passenger Boat, Air-conditioned train, Domestic flight, Bus stop (only air-conditioned area), Elevator, Public Telephone Booth, School Bus, Theater, Library, Barber shop, Tailor shop, Grocery Store, Air-conditioned drug store, Air-conditioned Sports facility, Clinic, Sacred sites and religious places (only areas performing ritual activity), Food court, and Air-conditioned Shopping center

2. Designated as "No Smoking" areas, but except for personal office.

School, Cultural Center, Museum and Art Center, Pre-School Nursery, Airport's buildings, and Indoor sports Complex

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3. Designated as "No smoking area", except personal offices.

University buildings, governmental buildings, banks, financial buildings, air-conditioned offices

4. No-smoking areas must not be less than 75% of total areas, such as train carriages, air-conditioned restaurant.

Violator is subject to a fine.

- The place owner who does not arrange a "No smoking area" is subject to a fine not more than 20,000 Baht.
- Smoking in forbidden areas is subject to a fine not more than 2,000 Baht.

2.5.3 Health Ministry Announcement No. 7 (1997)

This announcement is concerned with the naming and designation of no smoking areas. The following places are designated as no smoking areas.

(1) Public bus
(2) Hired vehicle
(3) Air-conditioned train carriage
(4) Passenger boat
(5) Domestic flight
(6) Passenger waiting area (only the air-conditioned area)
(7) Elevator
(8) Public phone booth
(9) School bus
(10) Theater
(11) Library
(12) Grocery store, Barber shop, Tailor shop, Beauty parlor, Drug store (only the air-conditioned one)
(13) Sports facility (only in the air-conditioned area)
(14) Medical facility without overnight beds

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(15) Sacred sites and religious places (only in the areas where religious activity takes place)

(16) Air-conditioned food court in the shopping plaza A place is known as “No Smoking Zone” when food service is being provided there.

5. The followings are designated as Health assurance areas for nonsmokers.

(1) School (up to the secondary school level)

(2) Cultural center, Museum, Art Exhibition Center

(3) Medical facility with overnight beds

(4) Preschool nursery/Childcare

(5) Airport’s buildings

(6) Indoor sports facility

6. The followings are Health assurance areas for nonsmokers.

(1) University buildings

(2) Buildings where Business Trade show takes place (only in the air-conditioned areas)

(3) Governmental buildings

(4) Banks and financial institutions

(5) Air-conditioned offices

7. Non-air conditioned Train carriage is Health assurance place for nonsmokers.

8. Air-conditioned restaurant and cafeteria are Health assurance areas for nonsmokers.

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2.6 Health Hazards of Smoking

Health Hazards of Smoking Introduction

Smoking is associated with significant morbidity and mortality. Smoking still remains one of the leading causes of preventable death. Smoking has the dubious distinction of affecting all the systems from head to foot

More harmful effects of smoking

Several studies have also shown that smoking leads to less stamina. Interferes with the functions of thyroid. Causes bone loss leading to bone fractures. Accelerates the development of the macular degeneration. Increases the chances of developing multiple sclerosis. Predisposes to cervical dysphasia

High Blood Pressure

Nicotine in the cigarette causes constriction of blood vessels which increases blood pressure resulting in hypertension.

Smoking causes an acute increase plasma ACTH, cortisol, aldosterone, and catecholamine levels which can in turn lead to indirect elevation of blood pressure.

Each time a cigarette is smoked there is an acute rise in blood pressure. Further more studies have shown that smoking interferes with the metabolism of multiple anti-hypertensive medications.

Heart Diseases and smoking

Smoking is one of the major risk factor in the development of cardiovascular disease by the action on the blood vessels; by increasing the work load of the heart; by decreasing exercise tolerance.

Coronary artery disease (CAD). Cerebrovascular disease Abdominal aortic aneurysm. Peripheral vascular diseases are some of the diseases

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caused by smoking. Cigarette smoking increases the duration of ischemia in patients with Coronary heart diseases and also the number of times a patient gets ischemic attacks. Smoking decreases HDL (good) cholesterol.

Health Hazards of Smoking - Impotence

Smoking increases the risk of erectile dysfunction because blood flow into the penis is blocked by atherosclerosis. Smoking causes abnormal sperm shape, impaired sperm motility damage, reduced number of sperms and reduced volume of ejaculate.

Upper Respiratory Infections

Smoking irritates the lining of the nose and causes increased nasal secretions and swelling.

Chronic Obstructive Pulmonary Diseases

Cigarette smoke also contains substances that directly damage the lung tissue thereby, reducing their capacity to absorb oxygen. Substances released by the immune system in response to cigarette smoke also destroy the lung cells. Smoking irritates the bronchial tree in the lungs, which in turn results in the production of more mucus causing the typical smokers' cough. Bronchitis and emphysema are some of the common consequences of cigarette smoking.

Premature Wrinkling of Skin

Tobacco use causes thickening and fragmentation of the elastic fibers of skin and decreases the formation of collagen that maintains a healthy and supple skin. Oxygen supply and the water content of skin is also reduced by reducing circulation.

Gum, Dental and Mouth Disease

Tobacco use may be one of the most significant risk factors in the development and progression of periodontal disease which results in poor mouth hygiene and bad breath.

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Chronic Hoarseness and Laryngeal Polyps

Chronic smokers often develop a persistent hoarse voice and sometimes a soft, benign growth in the voice cords called vocal cord polyps which might need surgical removal.

Peripheral vascular diseases

Smoking by its action on blood vessels causes vasoconstriction and is the also the risk factor for the development of large vessel peripheral vascular disease and inflammation of a vein. This is mediated through smoking induced atherosclerosis and vasoconstriction. These conditions are exacerbated by diseases such as diabetes.

Health Hazards of Smoking - Stroke

Smoking causes deposition of fatty deposits in the blood vessels which is called atherosclerosis. Slowing of blood flow also occurs which in turn can lead to thrombus formation. This can result in stroke. The risk of stroke due to cigarette smoking is dose related i.e. the more number of cigarettes one smokes, greater is the risk of stroke.

Smoking and Ulcer

Studies have shown that smoking increases acid secretion, and decreases mucosal blood flow resulting in acid peptic ulcer and also delays the healing of gastric and duodenal ulcers.

Smoking and Pregnancy

Smoking causes delivery complications, Increases risk of pre-term delivery. Giving birth to low-birth weight baby Slows fetal growth.

Smoking also increases risk of serious health problems to the newborn such as:

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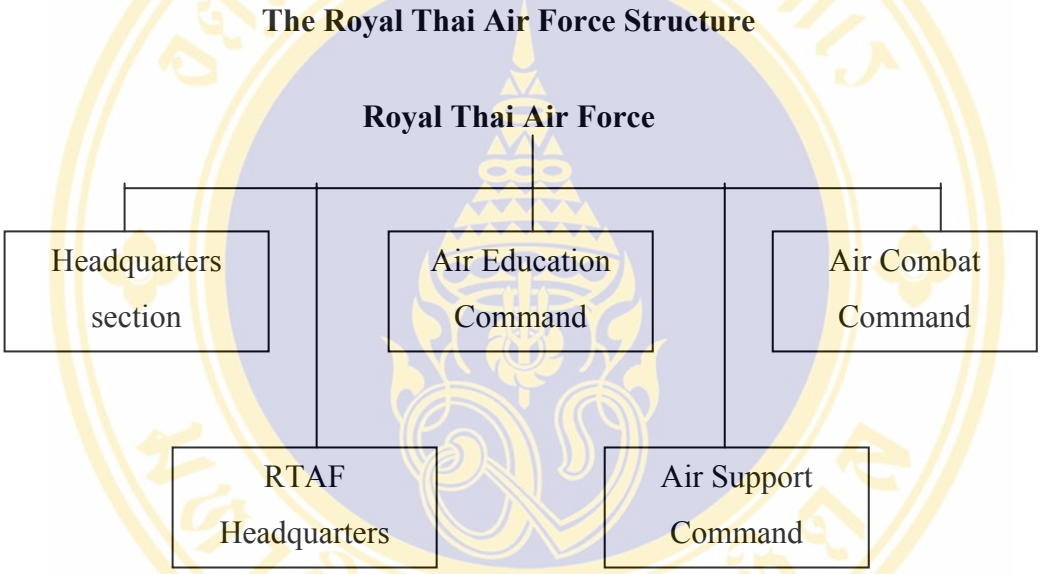
- Cerebral palsy
- Mental retardation
- Learning disabilities

2.7 The Royal Thai Air Force Structure



Direct Subordinate Directorates and Special units

Direct Subordinate Directorates includes

1. Office of the RTAF Secretariat
2. Directorate of Personnel
3. Directorate of Personnel
4. Directorate of Intelligence
5. Directorate of Operations
6. Directorate of Logistics
7. Directorate of Air Inspection
8. Directorate of Civil Affairs
9. Office of the Comptroller, RTAF
10. The RTAF Information Technology Office

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2.8 RTAF Policies and implementation plans regarding health promotion

The Royal Thai Air Force (RTAF) has realized the importance of health promotion that can be beneficial to its personnel, understanding that good health is vital in military profession. This vision is in agreement with the government's health policy - good health prevails over treatment. Most health problems usually involve personal habits that impede health promotion, such as lack of exercise, consumption of unhealthy food, or heavy drinking and smoking. To foster the government policy on health promotion, the Supreme Command Headquarters as well as the Army, Navy and Air Force had initiated relevant health programs (under a directive signed in 2003) to be conducted from 2003-2006 and to be used as a directional framework for all military personnel, their families and interested people living near military units.

RTAF's Health Promotion plans 2003-2006

The Royal Thai Air Force has made several health promotion plans for the benefits of its personnel such as

1. The Management Development Plan for Health Promotion Program

1.1 The *RTAF Committee's consideration for Health Promotion activities among RTAF personnel* to educate RTAF personnel and their families about good health in order to change their behaviors, including offering pertinent information to interested people living near military units.

1.2 Seminar *on Health Promotion conducted within all RTAF subordinate units*

1.3 Health *Promotion Evaluation Project (2002-2006)*

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2. There are plans & projects focusing on development of RTAF personnel's health enhancing skills.

2.1 "Good health" program for RTAF Top Commanding officers

2.2 Health Promotion Leadership Training Program

2.3 Health Promotion Program for Air Force active-duty personnel

2.4 Fitness Enhancement Program

2.5 Aerobics Instructor Training Program

3. Plans on developing personnel health enhancing skills

3.1 RTAF Exercise for Health Program

3.2 RTAF Exercise for Health Program in Workplace

3.3 Good Health Promotion among the elderly

3.4 RTAF Health Promotion Program

3.5 Community Network Program for Health Promotion

4. Plans on Environment Development for Health Promotion

4.1 Health Promotion Hospital

4.2 Good RTAF Wings/Workplaces

5. Programs on Health Promotion Service

5.1 Healthy Food campaign

5.2 No-Drinking Campaign

5.3 Anti-Smoking Campaign

5.4 Garbage Cleaning Campaign

5.5 Sport & Exercise Programs

5.6 "Drive Safely" Campaign

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6. Public relation plans concerning health promotion

6.1 RTAF Public Relation Program

6.2 RTAF Public Relation and Community Involvement Program

7. Research and Knowledge-Based Development in Health Promotion Project

7.1 RTAF Health Promotion Survey Program

7.2 RTAF Health Behavior Study Program

7.3 RTAF Health Economic Study Project related to Health Promotion

7.4 Operations Seminar for Health Promotion Researchers

7.5 Development of Handbook of Hygiene in Health Promotion

2.9 Related Researches

Potjanat Watcharapimonnart (1992) had conducted a study on attitudes, knowledge and behaviors of smokers towards the Bangkok Act, and found 87.7% of them well aware of negative effects of smoking on nearby people. And 92% knew that medical/treatment places were designated as no smoking zones.

Regarding the participation in protecting nonsmokers from harmful effects of smoking, it was found that 74% did not smoke in forbidden areas; 67.7% did not smoke in crowed areas.

On the showing of “No Smoke” signs in designated areas, the majority had seen such warning signs in places like medical facilities and governmental buildings.

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Regarding the compliance with smoking restrictions, 58.3% always followed the rules, and 40.3% sometimes obeyed.

Sangoun Nittayarumpong and team (1992) had studied health assurance for nonsmokers in public places under Smoking Act of 1992. The findings were that most service operators had good to moderate level of smoking knowledge and attitudes, and this knowledge was not related to gender, age, marital status and education. 86.9% were aware of Health assurance laws. 97.2% agreed that the enforcement of relevant laws should be conducted at their workplaces. Concerning the readiness to designate smoking areas, 47.7% were ready, 20.3% were most ready. 70.8% could readily designate areas for smokers and nonsmokers. 18% needed one year to carry out.

Supanee Santayakorn (1998) studies on knowledge and awareness of smoking among NCO police at Nonthaburi province. Results revealed that these police had moderate knowledge level of smoking law. And age is related to smoking knowledge. Their smoking awareness was rated high. It was also found that TV had the highest influence on information reception. 61% received information every day. Smoking knowledge and awareness are correlated.

Emorn Putthipisitchet (1999) conducted a study on knowledge, response and behavior of Thai people towards smoking in public places. Results found that the majority responded well, with the highest average score on questions of nonsmoker's rights. Most smokers extinguish a cigarette before entering no smoking areas. They are very careful not to smoke in crowed places. Most nonsmokers avoided exposure to cigarette smoke. Some even requested their residence designated as nonsmoking areas. But very few of them scolded smokers for violation in no smoking areas.

Kittipong Sukunnee (2004) had studied Health Assurance Act (beneficial to nonsmokers) of 1992, his findings revealed that the majority of authority were women (55.7%), 96.5% of them had received knowledge/information relating to

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smoking (77.9% from newspaper, magazines and academic papers). Regarding smoking attitudes among authorities, 89.5% were impressively knowledgeable. In the compliance with Smoking Act, 80.8% needed to be improved. And it was found that authority's attitudes were related with Smoking Law compliance (Act of 1992), with significance $P < 0.05$.

According to a Health report conducted by the Army hospital during 1994-95, an opinion survey on 3,724 army male personnel selected from 8 battalions and 8 regional units, smoking risks among them were very high; smokers were divided into officers (22.6%), Non-commissioned officers (45.3%) and conscripts (68.1%). A study aiming at high school students passing to study in the Military Technical Training School and Army Non-commissioned Officer School (Charoenca, N.et a.,2001), it was found that 20% were smokers - a number close to Thai male smokers at the same-age group, but lower than those among draftees in Finland (at 33%), and USAF (28%).

Regarding examining risk factors of Cerebrovascular diseases (Samart Nithinan and team, 1999), it was found that among 753 military personnel receiving medical checks, 561 persons had smoking history (74.5%), and 431 persons continued smoking (57.2%), which was quite a high number. Another research by Pojjamarn and team (1998) on the army personnel's healthiness reported that smoking rate among personnel working in the Military Animal Training Center (42%) was higher than those at other three army units (24-29% result). This is possibly due to a high number of male personnel at the Animal Center smoking more heavily than those at other two units.

Epidemiology report regarding smoking among military and police personnel in Konkaean province. Reported in 1992, Smoking rate among military and police personnel was 46.7% - military 50.5% (NCO = 51.6%, Officer = 37.1%) and police 40.2% (NCO = 41.5%, Officer = 35.6%).

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CHAPTER 3
RESEARCH METHODOLOGY

A study of THE KNOWLEDGE ON SMOKING OF ROYAL THAI AIR FORCE (RTAF) HEADQUARTERS OFFICIAL the research used questionnaire were tools of this research as following details.

3.1 Population and Sampling

3.1.1 Population in this study was 2,211 Royal Thai Air Force (RTAF) headquarters officials, with ranks from leading aircraftman to group captain, who are randomly selected from to subordinate directorates in August 2005.

3.1.2 Sample size was specified from samples selected from 2,211 Royal Thai Air Force (RTAF) officials by using Yamane's formula (1973) as referred by Yuth Viyawon 2002, with deviation 0.05

$$\text{Determing} \quad n = \frac{N}{1 + Ne^2}$$

Where
- n = Samples
- N = Population 2,211
- e = Deviation of sample

$$\text{Substitute} \quad n = \frac{2,211}{1 + 2,211(0.05)^2}$$

$$= 339$$

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3.1.3 The researcher had selected a sample group from the following Royal Thai Air Force (RTAF) current assigned as follows:

3.1.3.1 The Royal Thai Air Force Headquarters

3.1.3.2 The Royal Thai Air Force Secretariat

3.1.3.3 Directorate of Personnel

3.1.3.4 Directorate of Intelligence

3.1.3.5 Directorate of Operations

3.1.3.6 Directorate of Logistics

3.1.3.7 Directorate of Air Inspection

3.1.3.8 Directorate of Civil Affairs, RTAF

3.1.3.9 Office of the Comptroller, RTAF

3.1.3.10 The RTAF Information Technology Office

Total number of samples is 340.

3.2 Research Instrument

The research instrument in this study was questionnaire. There are procedures, contents and validity of questionnaire formulation as follows.

3.2.1 Formulation of Questionnaire

3.2.1.1 Concepts and literature in relative to the studies have been reviewed from e.g. books, Textbooks, related researches.

3.2.1.2 Concepts and literature was analyzed and presented in the form of questionnaire.

3.2.1.3 Content of questionnaire.

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Questionnaire was divides into parts as follows:

Part I Personal data

Part II Knowledge

Part III Smoking / non smoking

Part IV Recommendations

3.3 Data Collection

In this study, the researcher has conducted the collection by her. The Faculty of gradated studies had issues letter of corporation, at the same time, the researcher submitted the completed questionnaire to samples at Royal Thai Air Force (RTAF) headquarters.

3.4 Data Analysis and Statistical Application

In this analysis, the contents and statistic shall be divided as follows.

3.4.1 Part I Descriptive Statistics are used by personal data and knowledge on smoking illustrated by frequency (N). Percentage (%) Standard Deviation (S.D.) and Mean ($\overline{X}$)

3.4.2 Part II Inferential Statistics is used with smoking / non smoking determination by Chi-square.

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CHAPTER 4
RESEARCH RESULTS

The research result of THE KNOWLEDGE ON SMOKING OR ROYAL THAI AIR FORCE (RTAF) HEADQUARTERS OFFICIAL. The researcher would like to propose the research outcome as follow:

4.1 Personal data

4.2 Knowledge and Understanding of adverse health effects from cigarette smoke.

4.3 Views/Opinions about smoking

4.4 Test Hypothesis

4.1 Personal Data (Table 4-1)

4.1.1 Gender The majority of the population are male (76.5 %), with female at 23.5 %.

4.1.2 Age The majority are between 41 – 50 year old (37.6 %), followed by 31 – 40 year old (23.8 %), 20-30 year old (22.9 %), and 51-60 year old (15.7 %).

4.1.3 Marital Status The majority are married (61.5%), single (33.5%), divorced/separated (5%).

4.1.4 Rank Squadron Leader – Group Captain 39.7 %, Flight Sergeant – Flight Sergeant First Class 27.6 %, Pilot Officer – Flight Lieutenant 17.9 % and Leading Aircraftman - Sergeant 14.7 %

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4.1.5 Education BS Degree (RTAF academy) 51.8 %, Air Technical Student/Higher Vocational school 39.4 %, Master Degree or equivalent 6.8 %, PhD. 0 %, Others 2.1 %

4.1.6 Income 10,001–20,000 Baht/month (35.3 %) 20,001-30,000 Baht/month (33.2 %) 5,000-10,000 Baht/month (19.7 %) 30,001–40,000 Baht/month (6.5 %) 40,001–50,000 Baht/month (3.5 %) and 50,001 Bath or more/month (1.8 %)

4.1.7 Residential Area Most sample groups have lived in the following areas, Middle part of Thailand (80 %), Southern part of Thailand (7.6 %), Eastern part of Thailand (7.1 %), Northern part of Thailand (4.7 %), Western part of Thailand (0.6 %)

4.1.8 Current Military Current assigned Data had been taken from 10 Military current assigned.

4.1.9 Years of Service Most have at least 21 years of service (45.9 %), followed by 6-10 years (12.9 %), 16-20 years (12.4 %), 1-5 years (11.3 %), 11-15 years (10.3 %), and below 1 year (7.1 %).

4.1.10 Personal Illness No personal illness (77.6 %), with personal sickness (15.9 %), and Undecided (15.9 %)

4.1.11 Healthiness Opinions from respondents on their physical healthiness are as follows, Very healthy 29.7 %, Moderate 67.4 %, and Less healthy 29.7 %

4.1.12 Smoking behavior Non Smokers (73.8%), Smoker (26.2%).

4.1.13 Duration of smoking, Never smoke (73.82 %), less than 1 year (0.59 %), 1-5 years (5.29 %), 6-10 years (8.52 %), 11-15 years (2.06 %), 16-20 years (2.65 %), 21 years or more (7.06 %)

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4.1.14 Quantity of smoking 1-20 cigarettes/day (11.76 %), less than 10 cigarettes/day (9.41 %), 21-30 cigarettes/day (2.94 %), 31-40 cigarettes/day (1.47 %), 41 or more cigarettes/day (0.6 %)

4.1.15 Reasons of smoking at the first time, Release stress (11.47 %) Follow peer pressure (5 %), Want to try (4.71 %), Imitating a person living in the same family (0.88 %), Improve smoker's appearance as an adult (0.58 %)

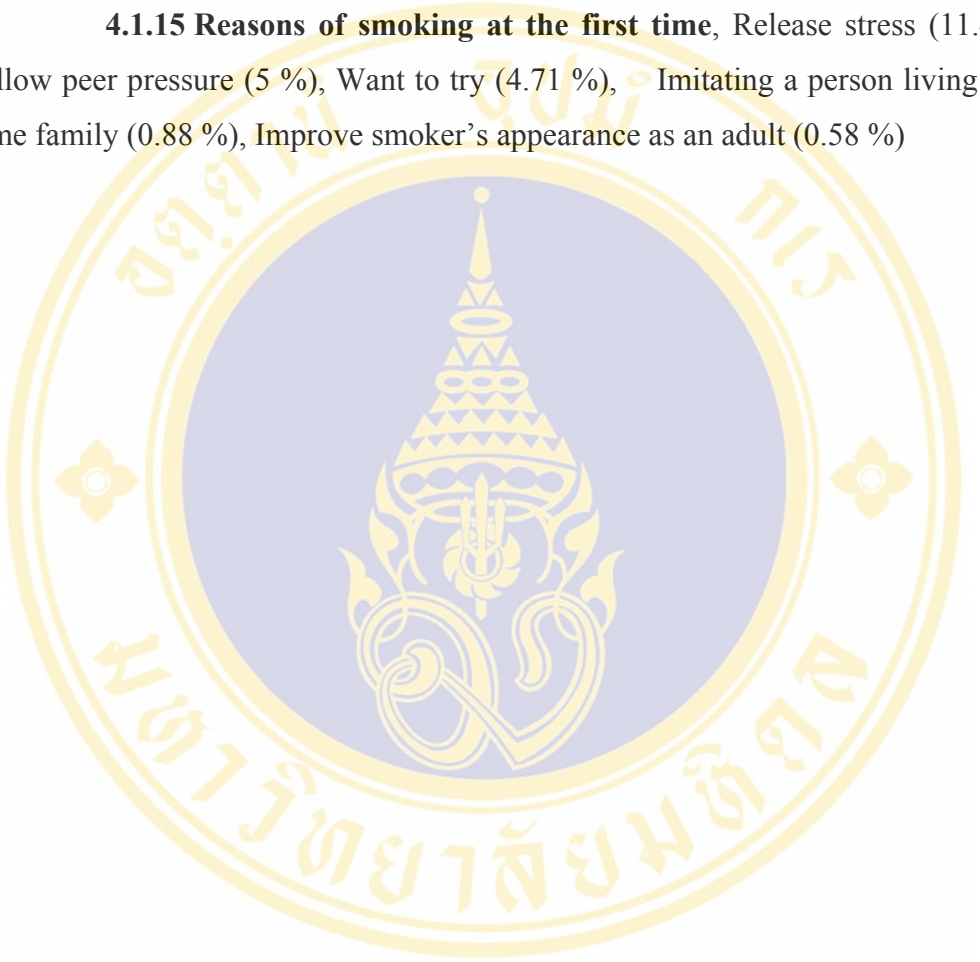

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Table 4-1 : Number and Percentage of sample group in accordance with personal details

Details	Number (340 total)	Percentage (100% total)
Gender		
Male	260	76.5
Female	80	23.5
Age		
20 – 30 years	78	22.9
31 – 40 years	81	23.8
41 – 50 years	128	37.6
51 – 60 years	53	15.7
Marital status		
Single	114	33.5
Married	209	61.5
Divorce/Separate	17	5.0
Rank		
Leading Aircraftman – Sergeant	50	14.7
Flight Sergeant–Flight Sergeant First Class	94	27.6
Pilot Officer – Flight Lieutenant	61	17.9
Squadron Leader – Group Captain	135	39.7
Education Level		
Air Technical Student/Higher Vocational school	137	39.4
Bachelor degree	176	51.8
Master Degree or equivalent	23	6.8
PhD. or equivalent 0 - Others	7	2.1

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Table 4-1 : Number and Percentage of sample group in accordance with personal details (Continued)

Details	Number (340 total)	Percentage (100% total)
Income		
5,000 – 10,000 Baht/month	67	19.7
10,001– 20,000 Baht/month	120	35.3
20,001 – 30,000 Baht/month	113	33.2
30,001 – 40,000 Baht/month	22	6.5
40,001 – 50,000 Baht/month	12	3.5
More than 50,001 Baht/month	6	1.8
Residential area		
Northern Thailand	16	4.7
Middle part of Thailand	272	80.0
Eastern Thailand	24	7.1
Southern Thailand	26	7.6
Western Thailand	2	0.6
Current assigned		
Office of the RTAF Secretariat	34	10.0
Directorate of Administrative Services	34	10.0
Directorate of Personnel	34	10.0
Directorate of Intelligence	34	10.0
Directorate of Operations	34	10.0
Directorate of Logistics	34	10.0
Directorate of Air Inspection	34	10.0
Directorate of Civil Affairs	34	10.0
Office of the Comptroller, RTAF	34	10.0
The RTAF Information Technology Office	34	10.0

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Table 4-1 : Number and Percentage of sample group in accordance with personal details (Continued)

Details	Number (340 total)	Percentage (100% total)
Years of military service		
Below 1 year	24	7.1
1 – 5 years	39	11.5
6 – 10 years	44	12.9
11 -15 years	35	10.3
16 – 20 years	42	12.4
21 years or more	156	45.9
Have personal illness or disabilities?		
No	264	77.6
Unknow	22	6.5
Yes	54	15.9
How do you rate your level of healthiness?		
Low	10	2.9
Moderate	229	67.4
High	101	29.7
Do you smoke?		
Yes	89	26.2
No	251	73.8

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Table 4-1 : Number and Percentage of sample group in accordance with personal details (Continued)

Details	Number (340 total)	Percentage (100% total)
How long have you smoked?		
No smoking at all	251	73.82
Less than 1 year	2	0.59
1 – 5 years	18	5.29
6 – 10 years	29	8.52
11 – 15 years	7	2.06
16 -20 years	9	2.65
21 or more years	24	7.06
The number of cigarettes smoked per day?		
No smoke	251	73.87
Less than 10 Cigarettes/day	32	9.41
11 – 20 Cigarettes/day	40	11.76
21 – 30 Cigarettes/day	10	2.94
31 – 40 Cigarettes/day	5	1.47
41 Cigarettes or more/day	2	0.60
Reason of first cigarette use?		
Do not smoke	251	73.80
Imitate another family member	3	0.88
Want to try	16	4.71
Persuaded by friends	12	3.53
Relieve stress	39	11.47
Show the image of adulthood	2	0.58
Peer pressure/group fad	17	5.00
Other reasons	0	0

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4.2 Knowledge and Understanding of adverse health effects from cigarette smoke. (Table 4-2)

From Table 4-2, most sample groups have a good understanding of negative health effects from cigarette smoke that can impact both smokers and nearby people.

4.2.1 Cigarette has a number of harmful substances that causes adverse consequences to both smokers and nearby people. Know 97.6%, Unknow 1.8%, Undecided 0.6% Mean = 2.96 S.D. = 0.274

4.2.2 Nicotine, a harmful substance in tobacco, can cause addiction. Know 95.6%, Unknow 1.8%, Undecided 2.6 Mean = 2.94 S.D. = 0.31

4.2.3 The burning of tobacco results in cancer-causing substances. Know 85.3%, Unknow 8.2%, Undecided 6.5% Mean = 2.77 S.D. = 0.56

4.2.4 Individual's allergy and asthma conditions can deteriorate upon exposure to Cigarette smoke. Know 82.4%, Unknow 10.6%, Undecided 7.1% Mean = 2.72 S.D. = 0.64

4.2.5 Cigarette smoke causes Lung Cancer. Know 91.5% Unknow 7.4%, Undecided 1.2% Mean = 2.84 S.D. = 0.53

4.2.6 Cigarette causes Heart Failure. Know 82.6%, Unknow 10.6%, Undecided 6.8% Mean = 2.70 S.D. = 0.64

4.2.7 Cigarette causes COPD (Chronic Obstructive Pulmonary Disease). Know 95.9%, Undecided 2.6%, Unknow 1.5% Mean = 2.94 S.D.= 0.29

4.2.8 Cigarette causes a cerebral hemorrhage. Know 70%, Unknow 16.2%, Undecided 13.8% Mean = 2.54 S.D. = 0.76

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4.2.9 Cigarette causes sexual impotence. Know 77.9%, Unknow 10.6%, Undecided 11.5% Mean = 2.67 S.D. = 0.66

4.2.10 Nonsmoker's exposure to secondhand smoke will have the same risk as smokers. Know 93.8%, Unknow 0.9%, Undecided 5.3% Mean = 2.93 S.D. = 0.29

4.2.11 Cigarette smoke can cause irritation to nose and throat, including headache and nausea. Know 90.3% Unknow 4.1% Undecided 5.6% Mean = 2.86 S.D. = 0.45

4.2.12 Non Smokers, working in the same place with Smokers, may have a higher risk of Lung Cancer. Know 82.6% Unknow 7.1% Undecided 10.3% Mean = 2.76 S.D. = 0.57

4.2.13 A pregnant women who smokes is more vulnerable to abortion and preterm labor. Know 79.4% Unknow 12.9% Undecided 7.4% Mean = 2.72 S.D. = 0.59

4.2.14 Children constantly exposed to cigarette smoke has a high risk of Respiratory Diseases, such as bronchitis and Otitis Media. Know 77.9% Unknow 12.4% Undecided 9.7% Mean = 2.66 S.D. = 0.69

4.2.15 Do you know the existence of laws forbidding smoking in public places? Know 88.2% Unknow 5.9% Mean = 2.82 S.D. = 0.51

4.2.16 Are you Know that the followings are "No Smoking areas"?

1. Bus Answer for this question from sample groups is as follows Know 94.9%, Unknow 4.1, Undecided 1.5%; Mean = 2.90 and S.D. = 0.41

2. Hired Bus Know 90.6%, Unknow 7.1, Undecided 2.4%; Mean = 2.84 and S.D. = 0.53

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3. Air conditioned Train Carriage Know 94.4%, Unknow 4.1, Undecided 1.5%; Mean = 2.94 and S.D. = 0.32

4. Passenger boats Know 79.4%, Unknow 12.4% Undecided 8.2%; Mean = 2.67 and S.D. = 0.69

5. Air conditioned restaurants Know 93.5%, Unknow 3.8%, Undecided 2.6%; Mean = 2.91 and S.D. = 0.37

6. Public Telephone Booth Know 67.6%, Unknow 19.7 %, Undecided 12.6%; Mean = 2.48 and S.D. = 0.80

7. Governmental Buildings Know 82.1%, Unknow 10.3 %, Undecided 7.6%; Mean = 2.72 and S.D. = 0.64

8. Schools Know 83.5%, Unknow 8.8%, Undecided 7.6%; Mean = 2.75 and S.D. = 0.61

9. Grocery Store, Barber shop, Tailor shop (only in air-conditioned areas) Know 84.7%, Unknow 8.8%, Undecided 6.5%; Mean = 2.78 and S.D. = 0.53

10. Exercise facility (only in air-conditioned areas) Know 89.7 %, Unknow 6.5%; Mean = 2.83 and S.D. = 0.52

11. Shopping Center (only in Air-conditioned areas) Know 94.4 %, Unknow 3.2%, Undecided 2.7%; Mean = 2.91 and S.D. = 0.38

4.2.17 Smoking in No-Smoking zone is subject to a fine of 4,000 Baht Know 50.3%, Unknow 29.4%, Undecided 20.3%; Mean = 2.21 and S.D. = 0.87

4.2.18 A shop without a clear sign stating "SMOKING/NO SMOKING area" is subject to a fine. Know 57.4%, Unknow 26.5%, Undecided 16.2%; Mean = 2.31 and S.D. = 0.86

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Table 4-2 : Percentage, Mean, S.D. according to the understanding of the smoke hazards and related consequences to health.

Questions	Number (340 total)	Percentage (100% total)
1. Cigarette contains a large amount of hazardous substances that will affect smoker's health as well as nearby people's		
Know	332	97.6
Unknow	6	1.8
Undecided	2	0.6
Mean 2.96		
S.D. 0.274		
2. Nicotine is a main cause of addiction		
Know	325	95.6
Unknow	6	1.8
Undecided	9	2.6
Mean 2.94		
S.D. 0.31		
3. Burning tobacco will result in Tar, a cancer-causing substance.		
Know	290	85.3
Unknow	28	8.2
Undecided	22	6.5
Mean 2.77		
S.D. 0.56		

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Table 4-2 : Percentage, Mean, S.D. according to the understanding of the smoke hazards and related consequences to health.
(Continued)

Questions	Number (340 total)	Percentage (100% total)
4. The health condition of people with asthma or allergy will deteriorate when exposed to cigarette smoke.		
Know	280	82.4
Unknow	36	10.6
Undecided	24	7.1
Mean 2.72		
S.D. 0.64		
5. Cigarette smoke can cause Lung Cancer.		
Know	311	91.5
Unknow	25	7.4
Undecided	4	1.2
Mean 2.84		
S.D. 0.53		
6. Cigarette smoke can cause Heart Failure.		
Know	281	91.5
Unknow	36	10.6
Undecided	23	6.8
Mean 2.70		
S.D. 0.64		

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Table 4-2 : Percentage, Mean, S.D. according to the understanding of the smoke hazards and related consequences to health.
(Continued)

Questions	Number (340 total)	Percentage (100% total)
7. Cigarette smoke causes COPD (Chronic Obstructive Pulmonary Disease).		
Know	326	95.9
Unknow	5	1.5
Undecided	9	2.6
Mean 2.94		
S.D. 0.29		
8. Smoking can cause Intracerebral Hemorrage.		
Know	238	70.0
Unknow	55	16.2
Undecided	47	13.8
Mean 2.54		
S.D. 0.76		
9. Cigarette smoke can cause impotence.		
Know	265	77.9
Unknow	36	10.6
Undecided	39	11.5
Mean 2.67		
S.D. 0.66		

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Table 4-2 : Percentage, Mean, S.D. according to the understanding of the smoke hazards and related consequences to health.
(Continued)

Questions	Number (340 total)	Percentage (100% total)
10. Nonsmokers exposed to secondhand smoke will have a chance of adverse health effects as those who smoke		
Know	310	93.8
Unknow	3	0.9
Undecided	18	5.3
Mean 2.93		
S.D. 0.29		
11. Healthy people exposed to cigarette smoke may develop nose and neck irritation, including Headache and nausea.		
Know	307	90.3
Unknow	14	4.1
Undecided	19	5.6
Mean 2.86		
S.D. 0.45		
12. Nonsmokers, working closely with Smokers, will also have a chance of lung cancer.		
Know	281	82.6
Unknow	24	7.1
Undecided	35	10.3
Mean 2.76		
S.D. 0.57		

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Table 4-2 : Percentage, Mean, S.D. according to the understanding of the smoke hazards and related consequences to health.
(Continued)

Questions	Number (340 total)	Percentage (100% total)
13. A pregnant woman who smokes is vulnerable to abortion, and is more likely to have a pre-term labor.		
Know	271	79.7
Unknow	25	7.4
Undecided	44	12.9
Mean 2.72		
S.D. 0.59		
14. Children constantly exposed to cigarette smoke are likely to develop Respiratory Diseases such as Bronchitis and Otitis media (Ear Infection).		
Know	265	77.9
Unknow	42	12.4
Undecided	33	9.7
Mean 2.66		
S.D. 0.69		
15. Do you know that Thailand has laws forbidding smoking in public places?		
Know	300	88.2
Unknow	20	5.9
Undecided	20	5.9
Mean 2.82		
S.D. 0.51		

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Table 4-2 : Percentage, Mean, S.D. according to the understanding of the smoke hazards and related consequences to health.
(Continued)

Questions	Number (340 total)	Percentage (100% total)
16. Do you know that the following places are designated as "No Smoking Zones"?		
16.1 Bus		
Know	321	94.4
Unknow	14	4.1
Undecided	5	1.5
Mean 2.90		
S.D. 0.41		
16.2 Hired Vehicles		
Know	308	90.6
Unknow	24	7.1
Undecided	8	2.4
Mean 2.84		
S.D. 0.53		
16.3 Air-conditioned train carriage		
Know	329	96.8
Unknow	8	2.4
Undecided	3	0.9
Mean 2.94		
S.D. 0.32		

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Table 4-2 : Percentage, Mean, S.D. according to the understanding of the smoke hazards and related consequences to health.
(Continued)

Questions	Number (340 total)	Percentage (100% total)
16.4 Passenger boats		
Know	270	79.4
Unknow	42	12.4
Undecided	28	8.2
Mean 2.67		
S.D. 0.69		
16.5 Air-conditioned restaurant		
Know	318	93.5
Unknow	9	2.6
Undecided	13	3.8
Mean 2.91		
S.D. 0.37		
16.6 Public Telephone Booth		
Know	230	67.6
Unknow	67	19.7
Undecided	43	12.6
Mean 2.48		
S.D. 0.80		

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Table 4-2 : Percentage, Mean, S.D. according to the understanding of the smoke hazards and related consequences to health.
(Continued)

Questions	Number (340 total)	Percentage (100% total)
16.7 Governmental buildings/State-Enterprises agency buildings		
Know	279	82.1
Unknow	35	10.3
Undecided	26	7.6
Mean 2.72		
S.D. 0.64		
16.8 School		
Know	284	83.5
Unknow	30	10.3
Undecided	26	7.6
Mean 2.75		
S.D. 0.61		
16.9 Small grocery store, Barber shop, Tailor shop ; Considering only air-conditioned areas		
Know	288	84.7
Unknow	22	6.5
Undecided	30	8.8
Mean 2.78		
S.D. 0.53		

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Table 4-2 : Percentage, Mean, S.D. according to the understanding of the smoke hazards and related consequences to health.
(Continued)

Questions	Number (340 total)	Percentage (100% total)
16.10 Exercise facility (only air-conditioned areas)		
Know	305	89.7
Unknow	22	6.5
Undecided	13	8.8
Mean 2.78		
S.D. 0.53		
16.11 Shopping mall or Department store (only in air-conditioned areas)		
Know	321	94.4
Unknow	11	3.2
Undecided	8	2.4
Mean 2.91		
S.D. 0.38		
17. Any person smoking in prohibited areas shall be subject to a civil fine of 4,000 Baht.		
Know	171	50.3
Unknow	100	29.4
Undecided	69	20.3
Mean 2.21		
S.D. 0.87		

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Table 4-2 : Percentage, Mean, S.D. according to the understanding of the smoke hazards and related consequences to health.
(Continued)

Questions	Number (340 total)	Percentage (100% total)
18. A shop or any public place without "No Smoking in this area" warning is subject to a fine.		
Know	195	57.4
Unknow	90	26.5
Undecided	55	2.31
Mean 2.31		
S.D. 0.86		

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4.3 Views/Opinions about smoking (Table 4-3)

4.3.1 All public places should be designated as no smoking areas. Strongly agree 66.5, Agree 23.5, Undecided 2.6, Disagree 7.4, Strongly disagree 0, Mean 4.49, S.D. 0.86

4.3.2 Person should not smoke in a "No smoking zones". Strongly agree 74.7, Agree 22.9, Undecided 2.6, Strongly disagree 0.9, Mean 4.70, S.D. 0.62

4.3.3 Nonsmoker has a right to ask smokers to stop smoking temporarily. Strongly agree 47.6, Agree 32.9, Undecided 12.1, Disagree 6.8, Strongly disagree 0.6, Mean 4.20, S.D. 0.94,

4.3.4 An individual has a right to live in clean environment without dangers from cigarette smoke. Strongly agree 68.2, Agree 26.2, Undecided 4.1 Disagree 4.1, Strongly disagree 0, Mean 4.61, S.D. 0.62

4.3.5 Smokers should respect nonsmoker's rights. Strongly agree 65.9, Agree 31.5, Undecided 1.5, Strongly disagree 0.6, Mean 4.61, S.D. 0.61

4.3.6 Similarly, nonsmokers should also respect smoker' rights. Strongly agree 40, Agree 40.9, Undecided 8.5, Disagree 6.8, Strongly disagree 3.8, Mean 4.06, S.D. 1.05

4.3.7 Designated Smoking areas should not cause any nuisance to people passing that area. Strongly agree 67.9, Agree 28.8, Undecided 3.2, Disagree 0, Strongly disagree 0, Mean 4.65, S.D. 0.54

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4.3.8 General people can ask offices or facility owners to designate particular "No Smoking" areas. Strongly agree 57.1, Agree 36.5, Undecided 3.8, Disagree 2.1, Strongly disagree 0.6, Mean 4.7, S.D. 0.72

4.3.9 Nonsmokers with adverse health effects from a secondhand smoking (from their colleagues) can file suit against their employers or firms. Strongly agree 41.5, Agree 30, Undecided 12.4, Disagree 6.8, Strongly disagree 2.4, Mean 4.01, S.D. 1.05

4.3.10 Unburned portion of a cigarette or cigarette ends cause dirtiness. Strongly agree 65, Agree 29.1, Undecided-Disagree 2.9, Strongly disagree 0, Mean 4.56, S.D. 0.69

4.3.11 Do you agree that the government should raise cigarette prices to reduce the number of smokers? Strongly agree 50.3, Agree 17.6, Undecided 9.4, Disagree 13.5, Strongly disagree 9.1, Mean 3.86, S.D. 1.34

4.3.12 More restriction of cigarette sales could reduce the number of smokers. Strongly agree 43.8, Agree 22.1, Undecided 19.1, Disagree 12.6, Strongly disagree 0.6, Mean 3.92, S.D. 1.16

4.3.13 There should be strict measures to limit smoking in most places since smoking may cause adverse health consequences to both property and health. Strongly agree 49.4, Agree 38.2, Undecided 6.8, Disagree 3.5, Strongly disagree 2.1, Mean 4.29, S.D. 0.90

4.3.14 There should be laws forbidding smoking in the governmental buildings. Strongly agree 57.1, Agree 20.6, Undecided 11.2, Disagree 6.8, Strongly disagree 4.4, Mean 4.19, S.D. 1.15

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4.3.15 A "No smoking" sign is clearly seen in your offices. Strongly agree 52.1, Agree 35, Undecided 10, Disagree 1.5, Strongly disagree 1.5, Mean 4.34, S.D. 0.83

4.3.16 There is a campaign on smoking ban in public places. Strongly agree 59.4, Agree 31.8, Undecided 5.3, Disagree 0.9, Strongly disagree 2.6 Mean 4.44, S.D. 0.85

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Table 4-3 : Reports on Percentage, Mean and S.D., in response to smoking related questions

Questions	Number (340 total)	Percentage (100% total)
1. All public places should be designated as no smoking areas.		
Strongly agree	226	66.5
Agree	80	23.5
Undecided	9	2.6
Disagree	25	7.4
Strongly disagree	0	0
Mean 4.49		
S.D. 0.86		
2. Person should not smoke in a “No smoking zones”.		
Strongly agree	254	74.7
Agree	78	22.9
Undecided	2	0.6
Disagree	3	0.9
Strongly disagree	3	0.9
Mean 4.70		
S.D. 0.62		

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Table 4-3 : Reports on Percentage, Mean and S.D., in response to smoking related questions (Continued)

Questions	Number (340 total)	Percentage (100% total)
3. Nonsmoker has a right to ask smokers to stop smoking temporarily.		
Strongly agree	162	47.6
Agree	112	32.9
Undecided	41	12.1
Disagree	23	6.8
Strongly disagree	2	0.6
Mean 4.20		
S.D. 0.94		
4. An individual has a right to live in clean environment without dangers from cigarette smoke.		
Strongly agree	232	68.2
Agree	90	26.2
Undecided	14	4.1
Disagree	4	1.2
Strongly disagree	0	0
Mean 4.61		
S.D. 0.62		

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Table 4-3 : Reports on Percentage, Mean and S.D., in response to smoking related questions (Continued)

Questions	Number (340 total)	Percentage (100% total)
5. Smokers should respect nonsmoker's rights.		
Strongly agree	224	65.9
Agree	107	31.5
Undecided	5	1.5
Disagree	2	0.6
Strongly disagree	2	0.6
Mean 4.61		
S.D. 0.61		
6. Similarly, nonsmokers should also respect smoker' rights.		
Strongly agree	136	40.0
Agree	139	40.9
Undecided	29	8.5
Disagree	23	6.8
Strongly disagree	13	3.8
Mean 4.06		
S.D. 1.05		

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Table 4-3 : Reports on Percentage, Mean and S.D., in response to smoking related questions (Continued)

Questions	Number (340 total)	Percentage (100% total)
7. Designated Smoking areas should not cause any nuisance to people passing that area.		
Strongly agree	231	67.9
Agree	98	28.8
Undecided	11	3.2
Disagree	0	0
Strongly disagree	0	0
Mean 4.65		
S.D. 0.54		
8. General people can ask offices or facility owners to designate particular "No Smoking" areas.		
Strongly agree	194	57.1
Agree	124	36.5
Undecided	13	3.8
Disagree	7	2.1
Strongly disagree	2	0.6
Mean 4.47		
S.D. 0.72		

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Table 4-3 : Reports on Percentage, Mean and S.D., in response to smoking related questions (Continued)

Questions	Number (340 total)	Percentage (100% total)
9. Nonsmokers with adverse health effects from a secondhand smoking (from their colleagues) can file suit against their employers or firms.		
Strongly agree	141	41.5
Agree	102	30.0
Undecided	66	19.4
Disagree	23	6.8
Strongly disagree	8	2.4
Mean 4.01		
S.D. 1.05		
10. Unburned portion of a cigarette or cigarette ends cause dirtiness.		
Strongly agree	221	65.0
Agree	99	29.1
Undecided	10	2.9
Disagree	10	2.9
Strongly disagree	0	0
Mean 4.56		
S.D. 0.69		

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Table 4-3 : Reports on Percentage, Mean and S.D., in response to smoking related questions (Continued)

Questions	Number (340 total)	Percentage (100% total)
11. Do you agree that the government should raise cigarette prices to reduce the number of smokers?		
Strongly agree	171	50.3
Agree	60	17.6
Undecided	32	9.4
Disagree	46	13.5
Strongly disagree	31	9.1
Mean 3.86		
S.D. 1.34		
12. More restriction of cigarette sales could reduce the number of smokers.		
Strongly agree	149	43.8
Agree	75	22.1
Undecided	65	19.1
Disagree	43	12.6
Strongly disagree	8	2.4
Mean 3.92		
S.D. 1.16		

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Table 4-3 : Reports on Percentage, Mean and S.D., in response to smoking related questions (Continued)

Questions	Number (340 total)	Percentage (100% total)
13. There should be strict measures to limit smoking in most places since smoking may cause adverse health consequences to both property and health.		
Strongly agree	168	49.4
Agree	130	38.2
Undecided	23	6.8
Disagree	12	3.5
Strongly disagree	7	2.1
Mean 4.29		
S.D. 0.90		
14. There should be laws forbidding smoking in the governmental buildings.		
Strongly agree	194	57.1
Agree	70	20.6
Undecided	38	11.2
Disagree	23	6.8
Strongly disagree	15	4.4
Mean 4.19		
S.D. 1.15		

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Table 4-3 : Reports on Percentage, Mean and S.D., in response to smoking related questions (Continued)

Questions	Number (340 total)	Percentage (100% total)
15. A "No smoking" sign is clearly seen in your offices.		
Strongly agree	177	52.1
Agree	119	35.0
Undecided	34	10.0
Disagree	5	1.5
Strongly disagree	5	1.5
Mean 4.34		
S.D. 0.83		
16. There is a campaign on smoking ban in public places.		
Strongly agree	202	59.4
Agree	108	31.8
Undecided	18	5.3
Disagree	3	0.9
Strongly disagree	9	2.6
Mean 4.44		
S.D. 0.85		

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4.4 Test Hypothesis

Minimum – Maximum scores, Mean, S.D., and Mean score of smoking knowledge base (Table 4-4)

1. From 18 questions, scores range between 28 - 84. Sample group's smoking knowledge scores range from 40-84, with Mean = 77.10 and S.D. = 7.35.

2. Regarding scores of smoking knowledge levels and the number of people involved, it was found that

High score	312 people (91.76%)
Moderate score	26 people (7.65%), and
Low score	2 people (0.59%)

Table 4-4 : Minimum score – Maximum score, Mean, S.D., and Score on Smoking Knowledge Base

Possible Score	Actual Score	Mean	S.D.	Score		
				Low n (%)	Moderate n (%)	High n (%)
28 – 84	40- 84	77.103	7.354	2 (0.59%)	26 (7.65%)	312 (91.76%)

Minimum – Maximum score, Mean, S.D. , and opinions on Smoking

1. Opinion scores from 16 questions range from 16-80. Opinion scores from a Sample group are between 47-80, with Mean = 69.45 and S.D. = 8.20.

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2. Opinion levels about smoking Vs. number of related people from sample groups

Very high	215 people (63.24%)
Moderate	105 people (30.88%)
Low	20 people (5.88%)
Very low	0%

Table 4-5 : Minimum–Maximum score, Mean, S.D., Opinion level regarding smoking

Possible Score	Actual Score	Mean	S.D.	Opinion level				
				Very low n (%)	Low n (%)	Moderate n (%)	High n (%)	Very high n (%)
16 – 80	47 – 80	69.45	8.20	0 (0%)	0 (0%)	20 (5.88%)	105 (30.88%)	215 (63.24%)

Testing of Hypothesis

Hypothesis established for this research are:

Hypothesis 1 Personal details from different sample groups cause difference of smoking knowledge base.

Hypothesis 2 Sample group's personal details are related to smoking knowledge base.

Personal details measured in Nominal Scale are gender, marital status, residence, current assigned, personal illness, healthiness, smoking habit and reasons of smoking. Such data had been used for testing Hypothesis 1.

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Different personnel's residential areas result in different smoking knowledge base, with Significance level = 0.05.

Different personnel's assigned current assigned result in different smoking knowledge base, with Significance level = 0.05.

Different personnel's illness causes different smoking knowledge base, with Significance level = 0.05.

Other variables of person's details do not affect smoking knowledge base, as shown in Table 4-6.

Table 4-6 : Variance analysis of smoking knowledge base among RTAF personnel working at the RTAF Headquarters, with person's data measured in Nominal Scale

Source of Variation	Sum of squares	DF	Mean Squared	F	Sig
Gender	1.256	1	1.256	0.23	0.879
Marital status	195.807	2	97.903	1.819	0.164
Residence	624.892	4	156.223	2.955	0.020*
Current assignment/current assigned	1400.897	9	155.655	3.034	0.002*
Personal sickness	399.946	2	199.973	3.758	0.024*
Healthiness	222.367	2	111.184	2.069	0.128
Smoking habit	4.315	1	4.315	0.080	0.778
Reason of smoking	136.871	6	22.812	0.417	0.867

* $p < 0.05$

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The analysis of variance found that only 3 variables causing different variances – residential area, current assigned, and personal illness, which are used for testing Hypothesis 2 (find a correlation using statistical Eta). Computed Eta (n) are 0.330, 0.301 and 0.356 respectively. Their correlation can be explained below.

- Residential area is related to smoking knowledge base (33%).

- Current assigned current assigned is related to smoking knowledge base (30.1%).

- Personal illness is related to smoking knowledge base (35.6%).

Personal details measured in Ordinal Scale (age, rank, education level, income, years of military service, smoking duration, and smoking quantity) are used for testing Hypothesis 3. Results are

- Different personnel's rank results in different smoking knowledge base, with significance level = 0.05.

- Different personnel's education level results in different smoking knowledge base, with significance level = 0.05.

- Different personnel's years of service result in different smoking knowledge base, with significance level = 0.05.

Other variables from person's details are not related to smoking knowledge, as illustrated in Table 4-7.

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Table 4-7 : Variance analysis of smoking knowledge base among RTAF personnel at the RTAF Headquarters, with personal data measured in Ordinal Scale

Source of Variation	Sum of squares	DF	Mean Squared	F	Sig
Age	353.036	4	88.259	1.644	0.163
Rank	493.098	3	164.366	3.096	0.027*
Education level	497.621	3	165.874	3.125	0.026*
Income	246.562	5	49.312	0.911	0.474
Remaining years in service	845.239	5	169.048	3.229	0.007*
Duration of smoking	246.456	6	41.076	0.756	0.605
Quantity of smoking	205.263	5	41.053	0.756	0.582

* $p < 0.05$

Personal data from sample groups, measured in Ordinal Scale, are used for testing Hypothesis 2 to find a relation with smoking knowledge base.

Sample group's personal details include age, rank, education level, income, years of service, duration of smoking and smoking quantity, but they are not related with Smoking Knowledge. Findings also reveal that

- Age has a relation with rank, education level, income, and years of service and duration of smoking.

- Rank has a relation with education level, income, and years of service.

- Education level has a relation with income, duration of smoking, and smoking quantity.

- There is a correlation between income and years of service.

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- Years of service, smoking duration, and quantity of smoking are also related.

- Duration of Smoking is correlated with Smoking Quantity as shown in Table 4-8.

Table 4-8 : Correlation between personal details, measured in Ordinal Scale, and smoking knowledge base.

Variables	Age	Rank	Education	Income	Years of Military Service	years in Service	Smoking Quantity	Knowledge Base on Smoking
Age	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Rank	.572*	.428*	.283*	.660*	.210*	.891*	.025	
Education level	.108*	.775*	.024	.043	.168*	.028		
Income	.658*	.507*	-.208*	.002	.081			
Remaining years in service	.805*	-.035	-.230*	.055				
Duration of smoking	.141*	-.074	-.085					
Quantity of smoking	.091	-.010						
Knowledge base on smoking	.097							

* $p < 0.05$

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Conclusion from testing Hypothesis 1 is that variables influencing Smoking Knowledge Base (Significance level = 0.05) are residential area, currently current assigned, personal illness, rank, education level and years of service.

Testing of Hypothesis 2 reveals that variables taken from personal details having a relation with Knowledge Base (Significance level = 0.05) are residence, currently Assigned current assigned, and personal illness.

Hypothesis 3 Different personal details result in different smoking opinions among those working at the RTAF Headquarters.

Hypothesis 4 Personal details of sample groups are related to smoking opinions taken from those working at the RTAF Headquarters.

- RTAF personnel of different social statuses provide different opinions, with Significance level = 0.05.

- The differences in personnel's healthiness result in different smoking knowledge, with Significance level = 0.05.

- RTAF personnel (both smokers and nonsmokers) have different opinions on smoking, with significance level = 0.05.

Different reasons of smoking cause different smoking opinions, with significance level = 0.05. Other aspects of personal details do not affect smoking opinions, as shown in Table 4-9.

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Table 4-9 : Descriptive Statistics of Variation

Source of Variation	Sum of squares	DF	Mean Squared	F	Sig
Age	126.585	1	126.585	1.890	0.170
Marital status	496.672	2	248.336	3.757	0.024*
Residence	91.668	4	22.917	0.339	0.852
Current current	827.238	9	91.915	1.382	0.195
assigned	379.204	2	189.602	2.854	0.059
Personal sickness	647.958	2	215.986	3.280	0.021*
Healthiness	2280.076	1	2280.076	37.612	0.000*
Smoking habit	2644.696	6	440.783	7.293	0.000*
Reason of smoking					

* $p < 0.05$

Eta. 0.148, 0.169, 0.316, 0.341

The analysis of variance reveals that four variables having significant level at 0.05, namely social status, health, smoking habit, and reasons of smoking. In finding such a relation using Eta method, it was found that Eta = 0.148, 0.169, 0.316 and 0.341 respectively. Details of their relations are as follows.

◆ Social Status is related to Smoking Knowledge; relationship value = 14.8%.

◆ Body healthiness is related to smoking habits of RTAF personnel working at the RTAF Headquarters; relationship value = 16.9%.

◆ Smoking is related to Smoking Knowledge; relationship value = 31.6%.

◆ Reasons of smoking is related to smoking knowledge; relationship value = 34.1%.

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Personal Data measured in Ordinal Scale are age, rank, education, income, years of service, duration of smoking and smoking quantity. After conducting the testing on Hypothesis 1, the author found that

- RTAF Headquarters personnel, who smoke in different periods of time, have different opinions on smoking, with a significance level = 0.05.

- RTAF Headquarters personnel, consuming different quantity of smoking, have different opinions on smoking, with a significance level = 0.05, as shown in Table 4-10.

Table 4-10 : Descriptive Statistics of Variation

Source of Variation	Sum of squares	DF	Mean Squared	F	Sig
Age	546.553	4	136.638	2.060	0.086
Rank	10.636	3	3.545	0.052	0.984
Education level	11.668	3	3.889	0.057	0.982
Income	281.318	5	56.264	0.836	0.525
Remaining years in service	611.885	5	122.377	1.845	0.104
Duration of smoking	1855.875	6	309.312	4.925	0.000*
Quantity of smoking	2063.227	5	412.645	6.656	0.000*

* $p < 0.05$

Personal details measured in Ordinal Scale have been used for testing Hypothesis 4 to find a correlation between personal details and smoking attitudes. The results are;

The relation between person's details and negative smoking views, with significance level = 0.05, depends on years of service, duration of smoking, and smoking quantity. Below is their relationship.

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Years of service is negatively related to smoking opinions among RTAF personnel working at the Headquarters (Significance level = 11.6%).

Duration of smoking is negatively related to smoking opinions among RTAF personnel working at the Headquarters (Significance level = 20.8%).

Smoking quantity is negatively related to smoking opinions among RTAF personnel working at the Headquarters (Significance level = 26.9%).

Table 4-11 : Spearman's rho, including a relation between Personal Scale (in Ordinal Scale) and smoking views

Variables	Age	Rank	Education level	Income	Years of service	Duration of smoking	Smoking quantity	Knowledge Base about Smoking
Age	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Rank	.572*	.428*	.283*	.660*	.210*	.891*	-.269*	
Education level	.108*	.775*	.024	.043	.168*	-.208*		
Income	.658*	.507*	-.208*	.002	-.116*			
Years in military service	.805*	-.035	-.230*	-.028				
Duration of smoking	.141*	-.074	-.001					
Smoking quantity	.091	-.010						
Smoking knowledge base	-.093							

* $p < 0.05$

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Conclusion from the test of Hypothesis 3 is that personal data that cause different smoking opinions (Significance level = 0.05) are marital status, healthiness, smoking habit, reasons of smoking, smoking duration, and smoking quantity.

Conclusion from the test of Hypothesis 4 is that personal data that are related to smoking opinions (Significance level = 0.05) are marital status, healthiness, smoking habit, reasons of smoking, years of military service, smoking duration, and smoking quantity.

Hypothesis 5 RTAF personnel's smoking knowledge base is related to their smoking opinions.

After analyzing the data using Pearson's Product Moment Correlation, it was found that smoking knowledge is not related to smoking opinions.

Conclusion Hypothesis is denied.

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CHAPTER 5
DISCUSSION

It is found in the study of THE KNOWLEDGE ON SMOKING OF ROYAL THAI AIR FORCE (RTAF) HEADQUARTERS OFFICIAL that study results reveal that most sample groups do not smoking cigarette (73.8 %) and 26.2 % of those who smokings have perceived tension relief as the main reason for smoking (11.47 %). Also from the findings, the number of smoking has increased over the last few years (percentage of smoking in a survey conducted in 2003 = 21.7 %).

Personal data affecting the knowledge on smoking are personnel's residential area, currently military workplace, personal illness, rank, education level, and years of military service. Moreover, it was found that only residence, current workplace and personal illness are correlated with the knowledge on smoking. This is probably due to the difference of anti-smoking campaigns being conducted, including individual's healthiness. Differences of other variables (gender, age, marital status, education level, rank, income, years of service, healthiness, smoking habit, duration of smoking, and smoking quantity) are not related to the difference in the knowledge on smoking. This research's finding corresponds to a study by Sangoun Nittayarumpong and Team (1992), but is in contrast with a work done by Supa Suntayakorn's (1998) who proposed that only age is correlated with the knowledge on smoking

Different personal data result in different views on smoking. Such personal data are data regarding marital status, healthiness, smoking habit, reasons for Smoking, and smoking quantity. These personal data are related with smoking opinions – the relation that has not yet been fully studied. In sum, smoking attitudes are dependent on various personal variables, especially those linked to smoking.

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In addition, it was found that the majority of RTAF personnel working at RTAF Headquarters have possessed very good smoking knowledge. This could be derived from intense anti-Smoking Campaigns the Air Force has conducted constantly, together with active Health Promoting Programs aiming at RTAF personnel. Other probable reasons include personal attributes/attitudes towards learning, as well as the advancement of Information Technology enabling quick access to knowledge. This research's finding is correlated with the work of Sangoun Nittayarumpong and Team (1992) in that most operators providing public services possessed a moderate to good level of smoking knowledge, and also corresponds to Supa Suntayakorn's conclusion in 1998 in that police NCOs working at Nonthaburi Police Station has moderate knowledge on smoking laws.

The knowledge on smoking found in RTAF study groups who work at the RTAF Headquarters ranges from high to very high level, but the knowledge base is not correlated with smoking opinions. Hence, high or low level of smoking knowledge among RTAF personnel at the RTAF Headquarters do not have effects on smoking views that have been accumulated from personal experiences. Kunya Suwannasaeng (1989) concluded that individual's awareness is a combination of understanding, thought, feel, memory, learning, judgments, and behavioral expressions.

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CHAPTER 6
CONCLUSION AND RECOMMENDATION

The objective of this research was to study the knowledge on smoking, the smoking hazards and health care from smoking of Royal Thai Air Force (RTAF) Headquarter official. The study group comprises 340 RTAF personnel working at the Headquarters, ranging from the lowest military rank of Leading Aircraftman to Group Captain, selected from 10 RTAF subordinate units. For data analysis, the author had utilized Frequency, Percentage, Mean, Standard Deviation (SD), One Way ANOVA, Eta Spearson's rho, and Pearson's Product Moment Correlation. Research Findings are summarized below.

6.1 Conclusion

6.1.1 General characteristics of the group sample

The majority are Male, 41-50 year old, married, being Air Force officers with ranks of Squadron Leader to Group Captain, graduating from the RTAF academy, earning 10,001-20,000 Baht/month, residing in the middle part of Thailand, having 21 or more years of military service, and having no records of personal sickness. Most of them are moderately healthy and non-smoking (73.82%). For those who smoke, length of smoking is between 6-10 years, and the consumption was 11-12 cigarettes per day. The major reason of smoking is for stress relief.

6.1.2 The understanding of adverse health consequences of cigarette smoking (to smokers and nearby people)

The majority has possessed good level of smoking knowledge (91.76 %), with Mean = 77.103

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6.1.3 Views on smoking/No smoking

The majority responded to questionnaires regarding "smoking/No smoking issues" (from 215 people or 63.24%), with Mean = 69.45.

6.2 Testing of Hypothesis

It was also interestingly found that variables from sample group's personal details rendering differences in smoking knowledge (Significance level = .05) are residential area, current workplace, personal illness, rank, education and years of military service.

Said variables described above that are related to smoking knowledge (Significance level = 0.05) are residential area, current workplace, and personal illness.

Variables causing difference in smoking views (Significance level = .05) are marital status, healthiness, smoking habit, reasons of smoking, duration of smoking and smoking quantity.

Variables from personal details that are related to knowledge views (Significance level = 0.05) are marital status, healthiness, smoking habit, reasons of smoking, years of service, duration of smoking and smoking quantity.

Lastly, smoking knowledge base is not significantly related to smoking opinions (P>.05).

6.3 Recommendation of the Study

The research finding, most of sample groups perceived that the smoking cigarette in Headquarters office was not appropriated.

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6.4 Recommendations

From the research findings, most sample groups perceive that smoking in offices is not appropriate. As for suitable smoking areas, opinions are summarized below.

- Designate smoking areas inside the RTAF Headquarters buildings.
- Impose stiff penalties for smokers who smoke outside allowed areas, such as fines.
- Assign two well-ventilated rooms at the 1st and 3rd floors, and install sucking fans in those rooms.
- Said rooms should not be located near working offices or workplaces, but should have good natural ventilation (by natural wind).
- Smoking areas should be located as far as possible from Nonsmokers such as open area, underground, remote pond, etc.

Other suggestions include

Some opinions on cigarette smoking taken from sample groups are

- Cigarette smoke is harmful to health and property. It will cause bad breathe.
- There should be frequent anti-smoking campaigns in the media in order to educate juveniles.
- Thus far, anti-smoking activities have been ineffective because cigarettes are produced in the country.
- If cigarette production is stopped, it will be more difficult to buy ones. Cigarette price will consequently increase, resulting in the decline in the number of active smokers.
- Smoking cigarette can have negative consequences. When addicted, a person will waste money from buying cigarette, and experience undesirable health effects. Moreover, other nearby nonsmokers inhaling smoke would be likely to develop health risks.
- It takes a strong determination to quit smoking.

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◆ Everyone knows that smoking is bad for his/her health, but each individual has personal reasons for continuing smoking. But that smoker must accept inevitable consequences.

◆ Governmental authority regularly conducts No-Smoking campaigns, but cigarettes are still produced in the country. For this reason, the government should raise cigarette prices.

◆ They do not like smokers.

◆ They want to see Armed-Forces personnel, including civilian civil servants quit smoking so as to show good examples to follow.

◆ Strongly agree on “Quit Smoking” campaign.

◆ Smoking is a personal right, but there must be clearly designated places for smoking, including the strict enforcement of smoking laws.

◆ Violators are subject to a fine, or face stiff punishment.

◆ Smoking is a personal right, but smokers must comply with the existing smoking laws. They must be aware of adverse health effects that may develop in nearby people (especially nonsmokers).

◆ Currently, those who smoke are generally not well accepted by the public, or even considered irresponsible to their society, sometime unintentionally commit unlawful acts. Consequently, relevant knowledge must be given to them, such as smoking hazards, smoking laws and punishment, including strict law enforcement by authorities involved. This may discourage them from smoking.

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APPENDIX

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THE KNOWLEDGE ON SMOKING OF ROYAL THAI AIR FORCE (RTAF) HEADQUARTERS OFFICIAL

This questionnaire is designed to collect people's attitudes towards smoking knowledge. Your information regarding smoking will be used for the thesis study as required by the degree of Master of Arts (addictionology) faculty of graduate studies Mahidol University. Research results will also be presented to the Royal Thai Air Force for further use.

This questionnaire is for academic purpose only. Your answers will be kept confidential. Please answer all questions, and select only correct ones.

Directions

This questionnaire is divided into 4 parts as follows.

Part 1	Personal details
Part 2	Knowledge Base on adverse health consequences to smokers and nearby people
Part 3	Opinions on smoking habits
Part 4	Recommendations

Please be informed that your response and comments will be greatly appreciated.

Sqn.Ldr.Udomporn Waiyanate

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Part 1 Personal Details

Please tick in front of the correct choice, or fill the answer in the blank.

1. Gender

( ) 1. Male

( ) 2. Female

2. Age

( ) 1. 20 – 30 years

( ) 2. 31 – 40 years

( ) 3. 41 – 50 years

( ) 4. 51 – 60 years

3. Marital Status

( ) 1. Single

( ) 2. Married

( ) 3. Widowed/Divorced/Separated

4. Rank

( ) 1. Leading Aircraftman - Sergeant

( ) 2. Flight Sergeant – Flight Sergeant First Class

( ) 3. Pilot Officer – Flight Lieutenant

( ) 4. Squadron Leader - Group Captain

5. Education

( ) 1. Air Technical Student/ High level Vocational School

( ) 2. RTAF Air Cadet/Bachelor Degree

( ) 3. Master/or equivalent

( ) 4. PhD. or equivalent

( ) 5. Others (please specify) …….

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6. Income

( ) 1. 5,000 – 10,000 Baht/month

( ) 2. 10,001 – 20,000 Baht/month

( ) 3. 20,001 – 30,000 Baht/month

( ) 4. 30,001 – 40,000 Baht/month

( ) 5. 40,001 – 50,000 Baht/month

( ) 6. 50,001 Baht/month

7. Residential area

( ) 1. Northern part of Thailand

( ) 2. Middle part of Thailand

( ) 3. Eastern part of Thailand

( ) 4. Southern part of Thailand

( ) 5. Western part of Thailand

8. Currently assigned Workplace

( ) 1. RTAF Secretariat

( ) 2. Directorate of Administrative Services

( ) 3. Directorate of Personnel

( ) 4. Directorate of Intelligence

( ) 5. Directorate of Operations

( ) 6. Directorate of Logistics

( ) 7. Directorate of Air Inspection

( ) 8. Directorate of Civil Affairs

( ) 9. Office of the Comptroller

( ) 10. The RTAF Information Technology office

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9. Years of military service

( ) 1. Less than 1 year

( ) 2. 1 – 5 years

( ) 3. 6 – 10 years

( ) 4. 11 – 15 years

( ) 5. 16 – 20 years

( ) 6. 21 years or more

10. Do you have personal illness or disabilities?

( ) 1. No

( ) 2. Unknow

( ) 3. Yes (Please specify) ……..

11. How do you rate your level of healthiness?

( ) 1. Low

( ) 2. Moderate

( ) 3. High

12. Do you smoke?

( ) 1. Yes

( ) 2. No

If you smoke, please answer questions 13-15.

13. How long have you smoked?

( ) 1. 1 year

( ) 2. 1 – 5 years

( ) 3. 6 – 10 years

( ) 4. 11 – 15 years

( ) 5. 16 – 20 years

( ) 6. 21 years or more

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14. The number of cigarettes smoked per day?

( ) 1. Less than 10 cigarettes/day

( ) 2. 11 – 20 cigarettes/day

( ) 3. 21 – 30 cigarettes/day

( ) 4. 31 – 40 cigarettes/day

( ) 5. 41 cigarettes or more/day

15. Reason of first cigarette use?

( ) 1. Imitate someone in family members

( ) 2. Want to try

( ) 3. Persuaded by friends

( ) 4. Relieve stress

( ) 5. Show the image of adulthood

( ) 6. Peer pressure

( ) 7. Other reasons……

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Part2 Knowledge and understanding about adverse health effects

Direction

Each question has three choices – Know Unknow, and Undecided. Please tick / if the answer is in agreement with your views.

Details	Know	Unknow	Undecided
1. Cigarette contains a large amount of hazardous substances that will affect smoker's health as well as nearby people's.			
2. Nicotine is a main cause of addiction.			
3. Burning tobacco will result in Tar, a cancer-causing substance.			
4. The health condition of people with asthma or allergy will deteriorate when exposed to cigarette smoke.			
5. Cigarette smoke can cause Lung Cancer.			
6. Cigarette smoke can cause Heart Failure.			
7. Cigarette smoke causes COPD. (Chronic Obstructive Pulmonary Disease).			
8. Cigarette smoke causes Intracerebral hemorrhage.			
9. Cigarette causes sexual impotence.			
10. Nonsmokers exposed to secondhand smoke will have a chance of adverse health effects as those who smoke.			
11. Healthy people exposed to cigarette smoke may develop nose and neck irritation, including Headache and nausea.			

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Details	Know	Unknow	Undecided
12. Nonsmokers, working closely with Smokers, will also have a chance of lung cancer.			
13. A pregnant woman who smokes is vulnerable to abortion, and is more likely to have a pre-term labor.			
14. Children constantly exposed to cigarette smoke are likely to develop Respiratory Diseases such as Bronchitis and Otitis media (Ear Infection).			
15. Do you know that Thailand has laws forbidding smoking in public places?			
16. Do you know that the following places are designated as "No Smoking Zones"?			
16.1. Bus			
16.2 Hired Vehicle			
16.3 Air-Conditioned Train Carriage			
16.4 Passenger Boat			
16.5 Air-Conditioned Restaurant			
16.6 Public Telephone Booth			
16.7 Governmental buildings			
16.8 School			
16.9 Small grocery store, Barber shop, Tailor shop ; considering only air-conditioned areas			
16.10 Exercise facility (only air-conditioned areas)			
16.11 Shopping mall or Department store (only in air-conditioned areas)			

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Details	Know	Unknow	Undecided
17. Any person smoking in prohibited areas shall be subject to a civil fine of 4,000 Baht.			
18. A shop or any public place without “No Smoking in this area” warning is subject to a fine.			

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Part 3 Opinions on Smoking Habits

Direction

There are 5 choices in each question – strongly agree, agree, Undecided, disagree, strongly disagree. Please answer the answer as you believe.

Pleas tick / in the choice corresponding to your opinions.

Details	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
1. All public places should be designated as "No smoking zones".					
2. Smokers should not smoke in a "No-Smoking area".					
3. Nonsmoker has the right to ask smokers to abstain temporarily from smoking.					
4. Each person has a right to live in clean environment without dangers from cigarette smoke.					
5. Smokers should respect nonsmoker' rights.					
6. Similarly, nonsmokers should respect smoker' rights.					
7. Smoking in designated areas should not cause a nuisance to passing people.					

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Details	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
8. General people can ask office owners to designate a particular No-Smoking area.					
9. Nonsmokers with adverse health effects from a secondhand smoking (from their colleagues) can file suit against their employers or firms.					
10. Unburned portion of a cigarette or cigarette ends cause dirtiness.					
11. Do you agree that the government should raise cigarette prices to reduce the number of smokers?					
12. More restriction of cigarette sales could reduce the number of smokers.					
13. There should be strict measures to limit smoking in most places since cigarette smoke can cause adverse consequences to property and health.					
14. There should be laws forbidding smoking in the governmental buildings.					

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Details	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
15. A “No smoking” sign is clearly seen in your offices.					
16. There is a campaign concerning smoking ban in public places.					

Part 4 Your recommendations

1. Designation of smoking areas in a workplace.

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2. Which area is the most appropriate for smoking?

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3. Other opinions/ideas concerning smoking

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BIOGRAPHY

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