An Evaluation of the Effects
# of Socially Induced Stress
on Cigarette Smoking

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A Thesis
in
The Department
of
Sociology

Presented in Partial Fulfillment of the Requirements
for the Degree of Master of Arts at
Concordia University
Montreal, Quebec, Canada

September 1983

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ABSTRACT

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It is argued that currently there are two "schools of thought" vying for dominance as the primary explanation of why people smoke. First, there are those authors who argue that individuals use tobacco products simply because they are addicted. The second "school" has proposed that the chief underlying reason for the observed tobacco consumption behavior relates to individuals use of nicotine as a "Psychological Tool" to primarly reduce the negative effects of stress. This later position was evaluated and tested. Twenty-two thousand individuals were ranked in terms of the degree of status inconsistency, and thus stress experienced. The association between status inconsistency and smoking was then tested. The variable stress was found to be a relatively poor predictor of smoking behavior, even though it did exhibit some explanatory power.

ACKNOWLEDGEMENTS

I wish to express my thanks to the following individuals who offered criticism, assistance, comments, advice and guidance in the preparation of this theses: Professors Bill Reimer, Taylor Buckner and Anthony Synott. I am especially indebted to my wife Fatima, mother and father, Albert Tabah and Bill Rose for the moral support given during the writing process. Tessie Mousseau, my sister, is to be thanked for typing the first draft. Finally Imperial Tobacco Ltd, is to be thanked for their generosity in providing the data used and the assistance of the Data Entry Dept. who did the word processing of the thesis.

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INTRODUCTION

A practice which has received a great deal of attention in the last two decades, in both the scientific and public spheres, is cigarette smoking. Both the physiological and pharmacological aspects of the practice have been studied. At the same time psychological tendencies of smokers has also received much attention. The central question behind much of this research is - why do people smoke? A suprising feature of any literature review on the subject is that there seems to be little or no agreement on the answer to this vital question. As one will discover, in the following analysis, many hypothesis have been proposed and tested. Yet, no one argument has gained a majority of support.

Recently, however, two opposing views have come to dominate the discussions occuring in academic publications. There are those researchers who argue that people smoke because they are addicted to nicotine; while other researchers propose that smokers use cigarettes (actually nicotine) as a buffering agent between them and their environment - either to reduce stress or enhance performance. It is argued in this thesis that if smokers do indeed use nicotine as a buffering agent against stress then individuals in the most stressful situations should have a higher probability of being smokers than those in less stressful situations. It is this proposition which is developed and tested in this thesis. Thus support may be found for one of the two conflicting theories dealing with why people smoke.

CHAPTER 1

1. Cigarette Smoking - Origin, Spread and Explanations

1.1 The Origin and Spread of Cigarette Smoking

The growth of the tobacco habit according to Van Need, "is one of the strangest developments in modern history" (1976). In less than four hundred years, tobacco usage has gone from a pratice unknown to much of the world to one used, in one form or another, by people in every country in the world. What began as a "ancient fraternal token", by native North and South Americans, "was to become a democratic ritual" (Brooks, 1952: 12). The spread of tobacco throughout the world was accomplished despite the efforts of Kings and Popes. In Russia and the East, smokers faced torture or death for owning a bowlful of tobacco. In Western Europe violators of the tobacco laws were subjected to pillory, excommunication, or the galley. China also attempted to restrain the spread of the habit, as beheading was the order of the day for those caught importing tobacco. Given these harsh penalites it is surprising that the practice of smoking spread at all.

There are three factors, however, which probably go a long way towards explaining why smoking has become an acceptable social practice. First, for three centuries (sixteenth through nineteenth) tobacco was thought to have strong medicinal properties and was prescribed for a multitude of ailments and diseases, whether corns or halitosis, cancer or tetanus. During this period tobacco gained wide social acceptance in Europe and abroad. Second, it did not take long for the governments of Europe to realize that the taxation of tobacco was a new, and extremely lucrative, source of revenue. Finally tobacco consumption, for whatever the reason, is apparently habit forming.

With the spread of tobacco, changes have occurred in how people consume the product. First, clay pipes were the only smoking implement available. Cigars were in use by the eighteenth century. Cigarette smoking, however, had to wait until after the Crimean War, during which time British soldiers picked up the practice from the Turks. Although the first European cigarette factory was started by Robert Cloag, a Scottish veteran of the Crimean War, in 1856, it was not until after the First World War that the practice of cigarette smoking showed its true growth potential (Van Need, 1976).

Canada can be used as an example when examining the growth of cigarette consumption. In 1920 only 2.4 billion tailor-made* cigarettes were sold. This amount is equivalent to one cigarette a day for every adult in the Canadian population at the time, or just over 400 cigarettes a year per adult. By 1950 the average consumption per adult grew to 1,790 cigarettes per year and is presently nearly double that amount (Rose, 1980:2). The growth of cigarette smoking has been phenomenal in the past half century. The end result is that in December 1979 there were 6.1 million smokers in Canada; 3.4 million were males and 2.7 million were female. This represents 38.6% and 30.1% of their

*machine made, pre-rolled cigarettes

respective populations (__________, 1980B). The magnitude of the practice, the social and economic implications of tobacco consumption in Canada and in the world, alone justifies asking the question - why do people smoke?

1.2 The Phases of Cigarette Smoking

Dunn (1973), building upon the work of Jarvik (1970), states that the smoking habit should be considered as one which consists of four phases. They are:

1) The Initiation Phase, a time which includes those events in a potential smoker's life which lead up to trial;
2) The Transition Phase, where the smoker tries his/her first cigarette and the smoker learns the subsequent effects of smoking;
3) The Maintenance Phase, wherein the smoking behavior becomes repititive and patterned; and
4) The Termination Phase, wherein other motive forces counter to those of the maintenance phase becomes dominant and determine behavior.

While it may be argued that possibly not all smokers go through these phases and that other phases may be useful in describing a smoker's "life-cycle", the typology does point out that different factors play various roles during a smoker's life. Although the focus of the thesis deals with why people maintain the habit, it may be useful to examine those factors that seem to play a dominant role in the first two phases - initation and transition.

1.3 Social Factors: Picking Up the Habit

In a recent study of 105,788 Canadian elementary and secondary students it was found that 13% of those who were interviewed, in grades 3 to 13, smoked cigarettes daily. Another 25% had tried smoking, but had not smoked any cigarettes during the past four weeks (________,1980A:1). The penetration of cigarette smoking among the young is thus obvious. Most authors believe that the pervasiveness of the habit among the young results from the interaction of various social influences. Starting to smoke is seen as a social phenomenon. Three factors - peer group pressure, parental and sibling influences and the definition of self-image, are seen in the literature as playing dominant roles.*

Using the results of a 1969 study of 1000 adolescents, carried out on the behalf of the American Cancer Society, R. Stephney concludes that three factors play an important role in determining whether or not someone will begin to smoke. They are, in order of increasing importance, parental smoking habits, older sibling smoking habits, and whether or not one's friends smoked. Stephney observed that

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* Much of the original research into this work can be found in the works of Mausner and Platt (1971) and Russell (1971). Summaries of the most salient points can be found in Stephney (1980: 327-329) and in "Smoking and Health in Canada" (March 1977: 28-35). The following discussion is in many ways a review of points made in these two publications.

> 32% of the teenage children of mothers who smoked were cigarette smokers compared with only 23% of the children of non-smoking mothers. Having a father who smoked influenced teenage smokers to a similar extent, but the importance of having an elder brother or sister who smoked was even greater. Smoking was found in only 20% of the teenagers whose elder brothers or sisters did not smoke, but in 43% of the teenagers whose older sibling smoked. Of greatest influence, however, was whether or not one's friends smoked. 56% of smokers and only 14% of non-smokers said their friends smoked.
> (1980A:327)

These same findings are echoed in the more recent "Saskatoon Smoking Survey" (Matthews and Piper, 1974) and the 1978 study of 1,682 6-8 graders in London, Ontario (Pederson et. al. 1981). It was again established that social contacts - whether one's friends smoke or not, appear to be more important than family background in determining initial smoking behavior.

It is also possible that through cigarette usage adolescents attempt to mediate between themselves, their self-image, their social contacts, and society itself. Sabler, Walsh and Taylor (1963) note that young smokers desire social acceptance and fear of ostracism from their peer group. Young smokers mention the desire to be liked and accepted as part of the group as their reason for starting. How the adolescent weighs and evaluates the conflicting peer pressures towards conformity in smoking behavior and the various social constraints on smoking, probably plays a role in determining whether or not he/she enters the transition phase of smoking behavior (i.e. whether one adopts the habit or not).

The pressure to start smoking is strong. Smokers, young ones in particular, may derive emotional support from each other.

> Groups of smokers may use smoking as a source of increased cohesion. It is frequently observed that when one member of a group lights a cigarette there is a tendency for cigarettes to be passed around and for other smokers to begin to smoke. The mutual giving of pleasure from communal sharing of cigarettes and matches, and the very fact of smoking together may account for the apparent social contagion in smoking.
> (Mausser and Platt, 1971:9)

In addition to possibly helping to develop communal satisfaction and support, smoking may be important to adolescents in that it can, or rather is believed to be able to, help establish one's "image" - how one is viewed socially. To many adolescents the image of participating in a practice which can carry with it connotations of maturity, toughness, independence and sophistication are undoubtedly attractive.

These image "giving" aspects of cigarette smoking seems to be quite important and to work differently among men and women. Rorke notices the increased prevalence of serious smoking among young women and suggests that three factors play a role:

> a) a greater degree of truthfulness resulting from the anonymous nature of answer cards (reference to a study),
> b) a more permissive attitude towards smoking on the part of the parents and teachers that allowed the children to openly admit their smoking habits, and
> c) the change in life expectations of young women from dependence as wives to independence as self-supporting individuals.
> (1976:32)

Smoking, or rather the socially perceived image of a smoker, possibily fits with the social expectations of young female smokers. Psychoanalytic considerations are used to theorize that

> females might utilize smoking to intensify boundary differences, i.e. to maintain their individuality .... that women utilize smoking to attain greater identification with the masculine mode of relating to the world - to achieve liberation from their stereotyped weak and subordinate role.
> (Fisher, 1976:156-157).

The importance of using cigarettes to define and enhance a particular definition of self-image is obviously seen as being of some importance in determining who goes past the initation phase and makes the transition to smoking.

Opposite positions can, however, be formulated. One's need for a positive self-image can also work against the adoption of the tobacco habit. Studies have shown that while young females have adopted cigarette smoking at increasing rate, the incidence of the habit among young males is declining (________, 1979:20-22). A possible explanation of this behavior is to conclude, as Dickens (1978) has, that males stop smoking at a greater rate than women because, once addicted, to cease to be a smoker may be

> a psychologically tough, stoical action more compatible with traditional male socialization and more gratifying to the male ego.
> (cited in Webber and Berenson, 1980:710).

Why this particular argument would not hold for women who are trying "to achieve liberation from their stereotyped weak and subordinate role" is a point which is open to debate. Yet, regardless of which side of the argument one wishes to be on, the role of cigarettes as a way of mediating between the person and his/her environment seems to be initially an important one.

This aspect of cigarette smoking can be further illustrated. Philip Morris (an American tobacco company which is also the second largest in the world) used the copy line - "you've come a long way, baby" in its advertisements for its very popular Virginia Slims cigarettes. In this campaign smoking is portrayed as a phenomenon strongly associated with the modern female. Females no longer need to be submissive to the demands of their husbands and family: they need no longer hide their consumption of tobacco.

Previously it was noted that to many adolescents maturity, toughness, and independence are images associated with cigarette smoking. RJR-MacDonalds (Canada LTD.) certainly had this in mind when they recently launched a new campaign for their Export "A" family of cigarettes. Portrayed, in a series of advertisements, is a young truck driver, smoking his cigarette. Independence, masculinity and toughness are the virtues praised in these pictorial statements. While role definition, as Mausser and Platt (1971) have argued, may be important in determining whether one adopts the tobacco habit or not; given the strong social pressure against smoking, it is unlikely that it plays as strong a role during the maintenance phase of smoking. If role definition is an issue during the maintenance phase, it is in determining which brand of cigarette one choses to smoke (Fry, 1971; Bergler, 1981:52) or whether one is going to attempt to quit smoking. It may be that what began as a gesture or a role definition could turn into either a purely habitual response, or a response based on social stimulation (Mausner and Platt, 1971:13). Before dealing with the issues central to this thesis - what factors are responsible for the maintenance of the habit, let us look at a few non-mainstream theories which have been proposed to explain why people smoke and essentially why they start.

1.4 The Oral Gratification Hypothesis

Smoking is for all intents and purposes an oral phenomenon. As such, some authors have chosen to see the habit as a form of oral gratification - possibly as a substitute gratification for deprival of the breast at weaning. This particular thesis has recieved some experimental support, as in the work done by McArthur et al (1958). In this particular study an inverse correlation was found between the ability to give up smoking and early weaning. It was furthermore "discovered" that those who did manage to quit, often sought other means of oral gratification via alcohol, coffee and overeating, which supports the general drift of the theory.

R. Stephney (1980A:330) in examining this particular perspective, identifies its origin as being Freud's "General Theory on Sexuality". Here, Freud argues that smoking and drinking are "primitive autoerotic" activities found especially in individuals in whom there was a "constitutional intensification of the erotogenic significance of the labial region". While the followers of Freud have found some correlations between oral frustration, for example, and smoking, the correlations have been weak. Futhermore, the establishment of a statistically significant correlation or an association between two variables does not imply a causal relationship. For

> it is quite conceivable that weaning practices and adult smoking are both reflections of much wider differences as a whole... (furthermore) (T)he idea that smoking is associated with alcohol and coffee drinking (both basically non-nutritive oral behaviors) is more firmly based. However, the fact that use of tobacco, coffee and alcohol tend to occur together can readily be explained without reference to the concept of orality. All three substances are to a large extent consumed in the kind of social context which might be more attractive to a particular kind of person. There is also the possibility that nicotine, caffeine and alcohol - all mood-altering substances - way be of greater usefulness to those with difficulties in the self regulation of effect, irrespective of any early childhood experience or of any constitutionally intensified "erotogenic significance of the labial region".
> (Stephney,1980:330-331)

The Oral Gratification argument has fallen out of favor over the past decade or two. Poor explanatory power, problems with Freud's analysis and developments in psychology in general have all helped contribute to the demise of this particular view of smoking. A more recent psychological orientation attempts to explain why individuals smoke as a function of various personality types. This orientation will now be considered.

1.5 Personality Types as an Explanation of Smoking

Bergler (1981:45) observes that a significant proportion of the research into the motivations behind cigarette smoking is concerned with the question of whether this behavior might not be the result of some hereditary personality trait. Currently the chief exponent of this theory is H.J. Eysenck (1965, 1980). According to Eysenck a person takes up smoking only if certain constitutional characteristics are present. Basically it is argued that "there are certain types of people who smoke;... this type of person has acquired his particular personality through hereditary causes" (Eysenck, 1965:75).

Eysenck's theorical framework rests on the notion that people can be classified into four types: the melancholic, the choleic, the sanguine, and the phlegmatic. This rather overworked classification is in turn transformed into a system of two "independant dimensions" (1965:79). The two poles of one dimension are labeled "introverted" and "extroverted", while those of the other are called "stable" and "unstable". It is the first dimension that plays a crucial role in Eysenck's work.

In his early work (1965) it was found that smoking was not related to neuroticism, but that it was significantly related to extroversion. The heavier the smoker the more extroverted they were found to be. This relationship between extroversion and cigarette smoking was explained by noting that extroverts are characterised by inhibitory activity in the brain's cortex, whereas introverts are characterised by excitatory activity in the cortex. Extroverts have a hunger for stimulation and for removal of cortical inhibition, thereby enabling them to perceive, think, and act more efficiently. Nicotine, is a stimulant and it follows that extroverts possibly seek the stimulation afforded by cigarette smoking.

Support for Eysenck's position can be found in the works of Matarozzo and Saslow (1960), Robbins et al. (1971) and Waters (1971), for example. In these works it was not only found that smoking was positively correlated with extroversion, but that smokers were over all (to varying degrees) more neurotic than non-smokers. Although these various authors seem to differ in terms of detail, they have one essential feature in common, namely that certain characteristics, which are largely inherited, determine whether or not an individual is likely to become a cigarette smoker.

This particular view of smoking has been subjected to much critism. Yet, often those who object most strenously to Eysenck's theory conduct research in other areas, thus not availing themselves to the act of testing his central hypothesis. As it turns out Eysenck himself has, rather than those critical of his general position, come closest to rejecting some of the central tentants of his school of thought.

In a recent research publication Eysenck observes that "(t)he relationship between extroversion and smoking, so often assumed to be of paramount importance, does not emerge in our data" (1980:314). Futhermore, he observes that the claim that "there are certain types of people who smoke" and that "this type of person has acquired his particular personality through heredity causes", (1965:75) needs to be watered down somewhat. For, fifteen years later in his study of identical twins, Eysenck argues that "(a)ll in all ... the picture emerges... that the onset of smoking and the consumption of cigarettes are governed by both genetical and environmental factors". Thus, setting the ground for the admission that "the over-riding single component is the unique environmental experiences of individuals" and that only one half of the remaining variation is due to "inherited factors" (1980:313). Having partially rejected personality and heredity as factors which play a primary role in determining why people start and continue to smoke, other avenues must be persued. The role of nicotine will now be considered.

1.6 The Role of Nicotine

It has been argued that social factors play an important role in determining whether someone starts to smoke or not, and that they possibly play a role in the general maintenance of the habit. However, if their role was crucial to maintenance of smoking, surely more people would have quit than has been the case; given the increasing anti-smoking pressures evident over the past twenty years. Furthermore, one may postulate that it is probable that the factors responsible for the initiation of smoking are not those which maintain the developed habit. Possibly some other factor(s) play a role.

Tobacco use as a form of drug taking/seeking, specifically for nicotine, is the most often discussed alternative view (Kozlowski, 1981; Jarvik, 1970; Stephney, 1980A; Russell, 1976; Kuman, 1970; Lucchesi et al., 1967; Russell et al., 1981). In particular, Stephney (1978,1980A) and Russell (1976) have argued that there are a number of reasons why one should consider this particular position.

In Stephney's argument three pieces of information are considered crucial. First, smokers absorb enough nicotine to have a major pharmacological effect. The pharmacological effects of nicotine derived from smoking have been well documented (Armitage et al., 1968; Battig, 1980,1981; Hall and Morrison, 1973). It is sufficient to note that the slightly more than one mg. of nicotine derived from the average cigarette is a sufficient dose to produce significant physiological changes: increased heart rate, blood pressure, serum levels of epinephrine and adrenalcortical compounds and significant vasoconstriction are observed.

Secondly, those whom use tobacco products also use them in a form which allows them to absorb nicotine - i.e. cigarette smokers inhale. Inhalation, it is argued, is only logical as a method of nicotine administration. "The enjoyment of tobacco through smell and taste, and the manipulative satisfaction of smoking" can be had without inhalation - a non-natural and initially uncomfortable behavior (Stephney,1978:49). Yet it is one which is efficient at getting the drug into the bloodstream. Armitage et al. noted that

> (t)he time course of the rise in blood pressure caused by the puff of tobacco smoke was almost identical with that resulting from an intravenous injection of nicotine. This shows that inhalation of tobacco smoke in man is an extremely efficient way of administering nicotine.
> (1968:332)

Further support for the position that nicotine is of primary importance comes from another study by Armitage et al. (1978). It had been noted that cigar and pipe smokers do not inhale the smoke into their lungs, a fact which seems to contradict the general nicotine taking thesis. Yet, as it turns out, such smokers do not have to inhale to absorb nicotine due to the fact that cigar smoke is alkaline, whereas cigarette smoke is acidic. Herein lies the reason why cigarette smokers inhale and cigar smokers do not. Unlike alkaline cigar and pipe smoke from which nicotine can be absorbed through the buccal mucosa, and snuff where it is absorbed in the nasal mucosa, the acidic smoke produced by a cigarette will "deliver" its nicotine only if drawn into the lungs. Cigarettes seem to necessitate inhalation. Futhermore,

> unlike most other addictive drugs, tobacco has never been used as a substance for ingestion. It has never been eaten like opium or cannabis, nor used as a beverage like alcohol and caffeine. This is doubless because, with absorption via the gut into the portal system, most of the nicotine in its first passage through the liver, would ...(become)... psychopharmacologically inert. With absorption through the lungs or the nasal and buccal mucosa, however, the liver is by passed, allowing the nicotine to get to the brain and other parts of the body in the active form. Thus, historical evidence shows that tobacco has been used only in ways which enable nicotine to exert a pharmacological effect.
>
> (Russel, 1976:2-3)

The third point used to support Stephney's position is that the vast majority of smokers utilize cigarettes which yield high levels of nicotine, even though the option not to exists. In Canada, five years after the start of a major push by manufacturers towards milder (low in tar and nicotine) products, approximately eighty percent of cigarettes delivered at least 1.0 mgs of nicotine; even though manufacturers, health and govermental institutions have continued to promote lower tar and nicotine (T/N) products.* Indications in the U.S. and Germany suggest that smokers have had a change in attitude toward low T/N products. World Tobacco's review of the 1981 American cigarette market states

> (i)mportant developments in the first half of the year were the stabilization of sales volume of non-filter cigarette and full-flavoured brands, after a period of decline. This may be tracking the German experience, where smokers became tired of low-tar brands and went back to more flavourful cigarettes. This is a phenomenon in the U.S. to watch.
>
> (Oct.1981:102)

Futhermore, studies indicate that smokers who 'switched' to brands of low T/N delivery were found to have significantly increased consumption. The greatest increases in consumption occured after the largest reduction in T/N delivery (Stephney,1980A:81-88). This increased consumption is possibly related to nicotine for it has been shown that smokers do manage to maintain a relatively stable nicotine level when switching from cigarette of one T/N level to another (Ashton et al.,1979). To achieve this end one may do any of the following; 1) increase consumption, as previously stated; 2) smoke harder thus taking in more smoke; 3) take more puffs or deeper drags, or both; 4) cover the holes in ventilated filters; or 5) hold the smoke longer in one's lungs so as to enhance the absorption of nicotine (Jaffe,1982:92). The methods are many and varied, however, all are aimed at the same end - to maintain one's nicotine blood level. It is apparent that nicotine is potentially a necessary, but possiby not a sufficient condition, in attempting to explain why people smoke. At this point one may simply state - people smoke because of nicotine. While this may be an accurate statement it leads one to ask "Why?". Are they addicted or is some other mechanism at work?

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*In the 1981 Report of the Surgeon General (U.S.A.) the following advice was given: "Smokers who are unwilling or as yet unable to quit are well advised to switch to cigarettes yielding less tar and nicotine, provided they do not increase their smoking or change their smoking in other ways." (cited in Jaffe, 1982). The nicotine level value was computed from the results of a 1981 national survey (Millar, 1983: 44). It was assumed, as is generally the case, that a one to ten relationship exist, in Canadian cigarettes, been nicotine and tar levels. It was also assumed that all handmade cigarettes deliver more than one mg. of nicotine.

CHAPTER 2

2. Nicotine Intake: Two Perspectives

2.1 Introduction

Having argued that nicotine plays a crucial role in explaining why people smoke, or for that matter use tobacco products in general, one is still left asking - Why? Two conflicting theories have emerged. First one can argue that smoking is simply an example of physical addiction to nicotine. Secondly, one could speculate that individuals use cigarettes as a "Psychological Tool" - i.e. "that smoking continues to be rewarding, not simply as a way of avoiding nicotine withdrawal, but as a means of controlling arousal" (Stephney,1980A:335). These two positions will now be considered. *

2.2 Smoking as a Physical Addition

Stephney (1980A) believes that researchers have not produced any conclusive evidence to warrant taking the position that smoking is an

---

* These two perspectives are most vigorously considered in the works on Russell (1971,1976,1978,1981) and Stephney (1978,1980,1982) and Ashton and Stephney (1981) with Russell strenuously arguing for the addiction model and Stephney arguing for the view that people maintain using tobacco because of it value as a "Psychological Tool". Other authors have also argued, as Stephney has, that there exists a direct relationship between smoking and stress (i.e. Balfour (1982), and Hall and Morrison (1973)).

example of nicotine addiction. His argument rests upon an evaluation of what he considers to be the three necessary criteria for labelling smoking as a physical dependence on nicotine. He postulates that if the addiction theory of smoking is correct then the following are necessary:

1. withdrawl symptoms should occur;
2. when provided with alternative sources of nicotine, smoking should be reduced; and
3. if one alters the nicotine delivery of a cigarette, smokers will attempt to compensate for this change.

Let us consider each of these in turn.

2.2.1 Withdrawal

Stephney notes that smokers who give up the cigarette smoking experience withdrawal symptoms such as irritability, inability to concentrate, craving, tremors, palpitations and depression. While these particular pieces of evidence would seem to indicate that withdrawl symptoms from an addictive substance do exist, it is argued that this may not necessarily be the case. For example, consider the following:

1) There is no difference between withdrawl effects felt by heavy or light smokers. Although one would anticipate heavy smokers to be more strongly addicted to nicotine;

2) it is those who attempt to reduce consumption, without complete abstance, who experience the most severe withdrawl effects; not the smoker who has gone "cold turkey";

3) withdrawl effects are relatively mild - "and are the kind which might be expected to follow the loss of psychological rewards of any "loved" object ...";

4) heavy smokers have been known to simply quit without experiencing withdrawl symptoms; and

5) many smokers can abstain for extended periods without experiencing hardships (i.e. coal miners, Jews on the Sabbath).

These observations, brought forward by Stephney, would seem to conflict with the view that cigarette smoking is an addiction.

2.2.2 Alternative Sources

If smokers are provided with alternative sources of nicotine then one would expect to find some reduction of smoking behavior - if they are indeed addicted to nicotine. These alternative means of suppling nicotine have been used in experiments on both animals and humans. The techniques fall into two categories. The subjects are given nicotine orally, through the use of chewing gum or aerosol spray and subsequent absorption through the buccal mucosa, and intravenously. The first two methods (gums and sprays) have not proven to be particularly successful in reducing cigarette consumption. An explanation of this may be, in the case of oral administration, that much of the nicotine is initially metabolized in the liver. Also, the absorption and transmission of the drug to the brain in both the oral and aerosol methods is quite slow. A third explanation may lie with the fact that mean blood levels of nicotine may be less important than peaks. The smoker may derive smoking 'satisfaction' from 'spikes' of nicotine laden blood produced by each cigarette. In an attempt to overcome these problems, experiments have been conducted whereby smokers are fed nicotine intravenously. In such cases nicotine is injected in a manner so as to mimic smoke inhalation - in terms of the speed and efficiency with which the drug is administered.

Stephney has argued that none of the experiments utilizing this technique, have produced any substantial reduction in cigarette consumption. Thus, he concludes, this class of experiments demonstrates that the "addiction model" is lacking in support.. However, at the same time he concedes that the respondents in one such study (Kuman et al,1977) were obviously nervous (possibly about being intravenously injected with nicotine - a deadly poison) or discomforted (through being injected by unbuffered nicotine). Thus, while the "addiction model" was not supported, it cannot be concluded that nicotine from smoking cannot be replaced by nicotine from an alternative source.

2.2.3 Altering Nicotine Delivery

The last series of experiments considered by Stephney deal with changing the nicotine delivery of cigarettes and observing how smokers respond. The Addiction Model would indicate that smokers, when confronted with a cigarette which has had its nicotine content altered, would change their smoking behavior to compensate for either higher or lower than normal nicotine levels.

Experiments have shown that compensation does occur. It can take two forms according to Stephney. First, smokers can simply increase or decrease consumption. However, evidence would indicate that this compensation is slight. A fifty percent reduction in nicotine results in a ten percent increase in cigarette consumption. Second, the smoker may "over-smoke" or "under-smoke" his/her cigarettes. To "over-smoke" the smoker simply increases the number of puffs, take puffs of longer duration and greater volume, inhales more deeply and smokes cigarettes to shorter lengths. To "under smoke" one only needs do the opposite. Smokers can thus compensate for substantial increases or decreases in nicotine levels (Fagerstrom and Bates, 1981; Stephney, 1980; Ashton, Stephney and Thompson, 1979). However, for Stephney, there is one major flaw with this conclusion.

> The changes in smoking behavior which follow brand-switching are therefore entirely consistent with the view that smokers seek to maintain their habitual level of nicotine intake when smoking cigarettes of different nicotine levels. The major flaw with this line of

> reasoning, however, is that cigarettes which differ in nicotine delivery also differ in many other ways, for example, in the experiments cited, nicotine yield varied with that of tar. Altough, as far as is known, the tar phase of cigarette smoke contains no substances which are 'psychologically active', the tars presumably contribute to taste and aroma and to the particular sensations accompanying smoking (such as the 'scratch' experienced at the back of the throat on inhalation). Thus smokers seeking merely to maintain the intensity of the pleasurable sensations involved in smoking (rather than the nicotine intake) would respond to changes in brand strength in exactly the way observed. The importance of nicotine, relative to that of other smoke constituents, cannot therefore be conclusively established on the basis of such experiments.
> (1980A:335)

From these three arguments, Stephney concludes that support for the role of nicotine, as an addictive agent cannot be found. Rather, he postulates, that "(s)upport for the crucial role of nicotine, however, is provided by an alternative approach to smoking, which considers that cigarettes maybe used as a 'Psychological Tool'" (1980A:335). As previously stated, this argument differs from the addiction model in suggesting that smoking continues to be rewarding, not simply as a way of avoiding nicotine withdrawal, but as a means of controlling arousal. This perspective will now be considered.

2.3 Smoking as a "Psychological Tool"

Central to this perspective (re: Stephney, 1980A) is the finding that under certain circumstances cigarettes act as a stimulant. They have been found to increase a subject's ability to attend to and maintain high levels of performance on monotonous or fatiguing tasks. While in other circumstances cigarettes can also act as a depressant or sedative in reducing the disruptive effects of stress on behavior. From these findings it is postulated that cigarettes have either or both arousal increasing and/or arousal reducing properties. Further support for this position comes from two other sources and findings. They are;

1. Comments from smokers about the effects cigarettes have on them. Generally in references to low arousal situations and when stressed.
2. Physiological measures of the effects of smoking - i.e.
    a) increased autonomic nervous system activity (increased blood pressure and heart rate - activities characteristic of stimulation); and
    b) changes in the central nervous system (CNS) activity as measured by electroencephalogram (EEG). Cigarette smoking is known to produce both high frequency, low amplitude waves in human and animal brains which are characteristic of stimulation and low frequency, high amplitude (alpha) waves, characteristic of low arousal states.

Utilizing the above findings and the results from a variety of experiments, Stephney proposes that the effects which nicotine produces are dependant on environmental factors. It is argued that under stressful situations nicotine has a tendency to act as a depressant. In a low arousal situation, which may be stressfull due to monotony, nicotine acts as a stimulant. Sufficient evidence is present, Stephney argues, to postulate that smoking and stress are related in some way.

Furthermore, it is postulated that smoking may be a way of reducing the effects of stress. This claim is based largely on the results of experimentation on animals. However, two experiments on humans are cited as support. A summary of these experiments follows:

> subjects who smoked did not show impaired performance on a task when they were systematically cheated of points which they could later convert to money. Interestingly, the increases in self-rated aggression were not different in the smoking, smoking-deprived and non-smokers groups, although the disruptive effect of the aggression was less in those who were smoking.... Evidence that cigarettes might be used to combat the disruptive effects of stress on performance comes also from another source; Myrsten et al. (1975) studied eight subjects who reported smoking in situations of high arousal and eight who were typically 'low-arousal smokers'. Both groups performed a task of two levels of complexity when smoking and when not smoking. The low-arousal smokers performed better when smoking only when the task was relatively simple and the high arousal-smokers only when the task was complex. When they were not smoking, the high- and low-arousal smokers performed equally well on both tasks. The pattern of results suggested that those subjects who normally smoked in situations of high-arousal were using the arousal-reducing effect of cigarettes to improve their performance when stressed by greater demands of the complex task.
>
> (Stephney, 1980A:338-339)

Another example of this effect can be found in a study conducted by Lewis and Nesbitt (1976) on Introductory Psychology students at the University of Nevada at Reno. As part of this experiment the students were given a task in the form of puzzles. The first puzzle could not be solved, while the second one was simple to solve. This particular test is usually conceptualized as a means of measuring tolerance for fustrative non-reward. Thus it was a task which could be viewed as one where stress or fustration may affect performance. Lewis and Nesbitt concluded:

> It appears that smoking smokers can indeed handle fustrative non-reward best, while smokers also persisted at the task. Non-smokers on the other hand could not handle frustrative non-reward well.
> (1976:12)

Support for Stephney's thesis about smoking being able to reduce stress can thus be found. However, solid examples of it are few and far between.

The above discussion has dealt with the position that smoking may reduce "the disruption of behavior by stress". However, as previously noted, Stephney also argues that nicotine and therefore smoking, could have arousal increasing activities - i.e. smoking improves task performance. This is especially so on monotonous tasks requiring sustained vigilance. Such arguments are not new. A.E. Hamilton cited Dr. Knight Dunlop of John Hopkins University in 1927 as saying

> We have,...., found evidence of improvements due to smoking in complicated operations comparable to the mental requirements of driving an automobile or airplane. In various investigation we have found that after smoking the person works more steadily, that is, with less spurt and slack.
> (1927:162)

While these results are not surprising considering the physiological effects of nicotine on humans (stimulated heart rates, higher blood pressure, etc.), it must be questioned as to whether improved performance and reduced stress are not "different sides of the same coin". Air traffic controllers, for example, do perform "monotonous tasks requiring sustained vigilance" and also work within a highly stressful environment. Could it not be that improving performance is just a simple way of reducing the level of stress in a particular situation? If so the central argument still revolves around the stress reducing properties of nicotine and smoking.

2.4 Smoking as a Psychological Tool - An Evaluation

The "Smoking as a Psychological Tool" model consists essentially of three main hypothesises. First, that nicotine is the prime reason for smoking cigarettes. Second, that nicotine addiction is not the underlying reason why people smoke. Thirdly, people smoke for the arousal inducing/reducing aspects of nicotine. These particular aspects of nicotine have, as we have seen in the previous section, been associated, by Stephney, with a need by smokers to reduce stress. Central to Stephney's argument is the hypothesis that people smoke to reduce the disruptions caused by stress. Thus one would expect to find that the incidence of smoking in a population varies directly with the levels of stress experienced by individuals in that population. The testing of this proposition is the central aim of the thesis. Stephney's second and third hypothesis form the central focus of this work. They are, on the one hand, a statement of denial of the Addiction Model, while, on the other, an implication that it is in response to stress, not addiction, that people maintain the smoking habit. The testing of the first hypothesis, that nicotine is the primary factor in cigarette smoking, is not an issue which can be experimentally tested given the scope of this thesis, it can however be dealt with indirectly. It may be worthwhile at this point to go back and critically examine Stephney's argument. For one shall see that the psychological tool model, as with the Addiction Model, cannot be entirely supported with the empirical evidence gathered to date.

Stephney argued that heavy smokers should feel greater nicotine withdrawal symptoms than light smokers if indeed nicotine addiction was present. This particular claim of his, however, must be questioned, Jarvik (1979) identifies certain inconsistencies in the literature when the subject of the effect of nicotine deprivation were examined. For example,

> (s)tudies by Myrsten, et al. and Mausner report no difference in this regard between light and heavy smokers. In contrast, Burns reports that the subjects who suffers withdrawl symptoms had smoked an average of 6.9 cigarettes/day more than asymptomatic subjects (p. 01). Wynder, et al. reports that the proportion of abstinent smokers reporting more than one withdrawl symptom increases with baseline consumption.
>
> (1979:30)

Furthermore Russell (1976:9) in measuring the nicotine plasma levels of subjects found a marked variation between subjects. These nicotine levels bore no relationship to usual brand, cigarette consumption levels, or to nicotine yield of cigarettes smoked. Thus he concluded that both cigarette consumption and nicotine yield are poor indicators of nicotine intake; even among regular smokers who claim to inhale deeply. Thus the position that heavy smokers should have greater withdrawl affects than light smokers may be pointless.

Stephney also argues that the withdrawl effects of nicotine (irritability, reduction in the ability to concentrate, cravings, tremors, depression, etc.) are relatively minor and similar to the loss of "psychological rewards of any 'loved' object ...". Apart from the above effects of nicotine withdrawl which may in themselves be relatively mild, other objective physical withdrawl effects have been demonstrated.

> These include a drop in pulse rate and blood pressure, gastrointestinal changes such as constipation, sleep disturbance, impaired performance at stimulated driving, and other tasks, changes in the EEG and visual evoked potential, and an increase in aggressiveness. Finally the coping behavior of rats under stress is disruptive when nicotine injections are withdrawn.
>
> (Russell,1976:38)

One can find further evidence which leads one to question whether or not fair treatment has been given to the literature on the subject. Johnson (1942) found that smokers injected with nicotine intravenously did find the sensation pleasent and were disinclined to smoke after a sufficient dose was given. He also observed that nicotine injections also relieved the withdrawl cravings of smokers deprived of cigarettes. Tucchesi et al. (1967) found small, yet highly significant ($p \leq 0.001$) reductions in the number of cigarettes smoked when nicotine was intravenously injected. Furthermore, smokers took fewer puff and discarded their cigarettes earlier. While the reduction effects produced in these experiments are small, they do indicate that the possibility does exist that nicotine can be supplied in alternative ways.

Other findings are available which question the experimental research design of various studies. For example, the above mentioned experiments did not recognize that slow infusion of nicotine into the blood stream is not a substitute for smoking. When one smokes nicotine is absorbed and circulated in a series of doses containing relatively high concentrations of nicotine (Russell,1976). These experiments also did not attempt to mimic the actual "spiked" delivery of nicotine and therefore were not an alternative to the smoker. In addition, it may be impossible to observe any noticable change due to the fact that one is attempting to change, in a relatively short time span (i.e. 6 hours in Lucchesi et al. (1967)), a routine which a smoker has repitiously performed up to 10,000 times a year. It may take far longer than this to simply wean the smoker away from the purely habitualized aspects of smoking. Futhermore, counting the actual number of cigarettes smoked may be misleading, for it appears that the pattern of puffing and inhalation play a more important role in determining the actual level of nicotine absorbed (Ballig,1981:3; Jaffe,1982:95).

Stephney's final argument against the nicotine addiction model, that it is not readily apparent when the nicotine delivery is altered in a cigarette that the compensation (titration) which occurs is a result of the reduction in nicotine, is a dangerous one. For if the observed titration (Ballig,1981; Fagerstom and Bates,1981; Jaffe,1982, Russell,1976) is not in response to nicotine reduction, but rather an attempt to reach the same levels of smell and aroma perviously accustomed to, then his own views must also be seriously questioned. Stephney's hypothesis also relies on the active and central role of nicotine in cigarette smoking.

As we have seen, support can be found for the nicotine addiction model yet, as Stephney (1980A) and others (Kuman et al.,1970; Fagerstorm and Bates,1981) conclude, conclusive support for the thesis is not available. It may be, as Jarvik (1977) concluded, that nicotine is a necessary but not sufficient condition for smoking behavior to occur. Finally, not enough work has been done to simply accept or reject the theory.

> The nicotine addition model suggests that the smokers regulates nicotine levels under widely varying conditions. It implies a mechanism which senses nicotine and provides the impetus for directed behavior - possibly a central "nicostat" or the integration of the various peripheral drug effects of nicotine. While the model is plausible and straight forward, critical tests have yet to be performed. Particularly, direct measurements of changes in nicotine titer and of the withdrawl state have not been attempted. Finally, among variables not adequately explained by the model are the role of enviromental stimuli in the control of the habit, the nature of individual differences in smoking behavior (for example, light versus heavy smokers and occasional versus chronic smokers), and the mechanism(s) by which relapse occurs following withdrawl.
>
> (Pomerleau,1979:53)

Stephney has attempted to demonstrate that the "Addiction Model" is an inadequate explanation of smoking behavior. He has, however, been relatively unsuccessful. This is due to the fact that there remains still much uncompleted research. The answers to many crucial questions are outstanding. Stephney's next step is to supply support for his own central hypothesis. That is: smokers smoke to reduce the effects of stress. On this last point some evidence has been previously found which demonstrates that smokers were indeed able to handle stress better than non-smokers in experimental situations. However, as it is often the case, the experimental data may reveal different findings if examined from a different perspective. Schachter (1977) in his evaluation of various experiments dealing with smokers and non-smokers ability to withstand painful shock (stressful?), particular those of Silverstein (1976) and Nesbett and Schachter (1966), concludes:

> (t)he fact that non-smokers exhibited higher tolerance thresholds than either deprived or low-nicotine smokers ... led to the contention that "smoking doesn't reduce anxiety or calm the nerves (but rather) not smoking increases anxiety by throwing the smoker into withdrawl."
> (cited in Pomerleau, 1981:192)

This particular observation would lend support to those whom favour the Addiction Model. It, from Schachter's standpoint, does not support the view that cigarettes are 'Psychological Tools' used by the smoker in an attempt to mediate stressful situations.

Support for the 'Psychological Tool' position is further weakened by a more thorough reading on the physiological effects of nicotine. The effect of nicotine on the brain have been shown not to be one of straight forward stimulation. There may be an ensuing sedative effect or action especially when larger dose are taken. Moreover, for a given dose, part of the brain may be stimulated while another may be depressed (Russell, 1976). While support for Stephney's hypothesis may be found, the case is not a simple and clear cut as one would expect. For, as Russell (1976) observes, the ability of nicotine to facilitate learning and conditioning in rats is bisphasic, dose dependant on the genetic background of subjects and on situational factors. Furthermore, smokers also develop a tolerance to the depressant effects of nicotine - so important to the stress-reducing view of smoking. Yet, this finding leaves one with a peculiar puzzle. How does one account for the comments from smokers about the effects cigarettes have on them - often with references to their stress reducing properties, and the observations by some researchers that smokers do seem to smoke more in stressfull situations? A number of possible explanations can be offered in answering this question-although controlled investigations are lacking (Dobbs et al. 1981:345). Russell, for example, concludes that this tranquilizing effect experienced by smokers maybe the result of:

> 1) The relaxing effect which it may have on sketal muscles; or
> 2) an increase in the rate of habituation (technically defined as an absence of EEG desynchronization to a certain stimuli) to an unimportant stimuli. This may help people relax in a situation where they are surrounded by excessive noise. (1976:32)

It is thus possible that smoking and stress reduction are indeed related. However, it need not be the case that this effect is the result of the drug nicotine. Utilizing Beckers insights into the social and cultural processes involved in learning to percieve and enjoy the effects of marijuana (1963:41-53) and Orcutt's observation that "the primary determents of the significant effects typically experienced by normal users of marijuana and alcohol are functions of social expectations towards the drug" (1972:243), it is possible to argue that the stress reducing properties of cigarette smoking can also be seen to be the result of social expectations. Children see their parents smoke when under stress and possibly conclude that this is what cigarettes are good for. The myth is passed on from one generation to the next, just as many other social expectations are also passed on. This conclusion is appealing for it helps one understand how the drug nicotine, a powerful stimulant, can be seen as a means by which the individual can mediate stressful situations through 'percieved' relaxation.

In the previous discussion, an attempt has been made to state and critically evaluate two competing hypotheses. One states, simply, that people smoke cigarettes because they are addicted to the drug nicotine. The other states that nicotine addiction is not why people continue to smoke, but rather, people smoke because they can use nicotine as a drug to buffer stressful and difficult circumstances - i.e., to reduce stress. From the previous discussion, it should be obvious when all factors are considered, that the evidence presents a picture which is somewhat contradictory and certainly incomplete. Evidence can be generated to support both hypothesis, yet insufficient evidence exists to reject one or the other.

The aim of this thesis is to evaluate the plausability of the hypothesis that people, once commited smokers, maintain the practice because it helps mediate stressful situations. In doing this, one of the central issues in Stephney's theory will have been tested and we will be better able to evaluate whether or not this theory is to be seriously considered. There are however, a number of issues which must be dealt with before the testing of Stephney's theory is pursued. First, what is stress and under what conditions does it vary? Secondly, as we shall observe, how does one measure stress, if it is generally conceived as a factor affecting an individual, but measured at the population level? These issues will be considered next.

CHAPTER 3

3. Stress and an Empirical Measure

3.1 Introduction

In this chapter the concept of stress will be dealt with. It will be observed that stress is a difficult concept to measure. In attempting to measure and develop empirical indicators for the degree of stress experienced by individuals, a number of different routes could have been pursued. However, due to difficulties in obtaining an "ideal" data set, secondary analysis was conducted on a data set containing a limited number of variables. These variables and their interrelationships were evaluated to determine which ones could cause individuals to experience differential degrees of stress. Specifically, the route chosen was to build an auxiliary theory linking stress to the empirically measurable concept of status inconsistency. While this is not the only route which could have been taken, it is one which is well suited for the data at hand. Individuals occupying various status configurations (states resulting from combinations of variables - i.e. young, female, and housewife) were rated on the degree of status inconsistency experienced. Since status inconsistency is linked directly to the concept of stress through the auxiliary theory we therefore have a means of measuring the degree of stress experienced by individuals. The first step in the process is to examine the concept of stress and the problems associated with it.

3.2 Stress

Although stress is the central concept in Stephney's thesis, no attempt was made to define it. Yet, without a definition or indicator of what is involved when one speaks of stress, we can proceed no further. In other words, to deal with stress as a concept which may have a number of meanings and a vague socially accepted connotation is an unacceptable state of affairs, if the previously stated relationship of smoking and stress is to be tested. Dodge and Martin, in their study dealing with the relationship between social stress and cronic illness, observed that

> (u)nfortunately, as important as the concept of stress is in the behavioural sciences, it has an indefinite meaning and symbolized different things to different people. When adjectives are attached to it by different writers, it appears to represent different phenomenal types; such as psychological stress, emotional stress, physiological stress, and social stress. Stress is sometimes depicted as something that exists within the individual, some kind of feeling, anxiety or emotion; but, in other instances it is designated as something that lies outside the individual, some external force or situation that illicits an apprehensive response from the individual. Finally, it is something specified as a product of the interaction between man and his external environment.
>
> (1970:30)

One is thus lead to believe that stress, at a definitional level, is a rather elusive term, yet one for which all individuals seem to have an intuitive feel. Furthermore, it is obvious that there exist several different types of stress within a given population.

However, a general definition of stress has been provided to us through the works of Hans Seyle. Seyle defines stress as "the nonspecific response of the body to any demand placed upon it" (1974:27). The utility of this definition is that it allows one to observe that regardless of the situation, stress can be produced; for all situations involve an increased demand for adjustment. Furthermore, "(t)his demand is non-specific; it requires adaptation to a problem irrespective of what that problem may be " (Seyle,1974:28). Stress may thus be produced by a drug or a hormone, or a "game of tennis or even a passionate kiss" (Seyle,1953:53). One may conclude that stress is not something to be avoided, since this would be impossible, but rather something one must learn to "meet (it) efficiently and enjoy (it) by learning more about its mechanism and adjusting our philosophy of life accordingly" (Seyle,1974:33). While the above conception of stress is useful in placing the concept literally at the center of our universe; it is so broad as to make measurement of the phenomena difficult.

Stress in common parlance, both in academic and popular literature often refers to a more specific usage. Stress is generally thought of as a phenomenon which produces anxiety in those individuals affected. In particular we are concerned with that form of stress which is prolonged and excessive. This type of stress is refered to, by Seyle, as "distress". It is distress which is being refered to when Lockerham defines stress as

> "an emotional-psychophysiological state of an organism that occurs in a situational context involving stimuli which serve as cues to illicit fear or anxiety responses"
> (1978:43)

Thus stress is observed to be the end result of a negative and prolonged situation. It is this type of stress, although more properly called distress, which will be the main focus throughout the remainder of this work.

At this point one may ask why is the narrowing of focus necessary? The answer lies in the sociological orientation being pursued. At a sociological level, we can tentatively define certain situations as being more stressful than others for the majority of individuals occupying them. Those situations where this is to be observed will most likely be those where excessive and prolonged stress is apparent. If one were to conduct the study at the level of the individual and thereby factilitate the use of a concept defined at a most general level, one must consider every individual's past experiences, learned behaviour, adaptive capacity, and orientation. While interesting results may be developed, it is not likely to lead to generalizations that are applicable at the sociological level. As such, the definition of stress used by Lockerham will be adopted.

Lockerham refers to the "situational context" in which stress is produced. What are these situational contexts? Moss (1973), observes that the majority of studies on stress indicate that most stress is socially induced, i.e. directly as a result of interaction between people and their environment. He observes further that "a great variety of different environmental conditions are capable of producing a stress state" (1973:56), be they, for example, interpersonal conflict, conflict between roles, or conflict between an individual's roles and various social conditions. Let us consider an example. Susser and Watson (1971) and Lockerham (1978) both, following Durkheim, argue that the relationship

relationship between anomie or alienation in a society and suicide rates are mediated by stress. Susser and Watson argues that the subjective states of anomie result from "state(s) of confusion, inchoate values, and loss of cohesion in social groups" and that

> the impact of such situations on the mental state of the individual, it is held, give rise to uneasiness, a sense of separation and isolation, frustation, powerlessness and apathy. (1971:87).

Thus these situations "might cause enough stress among individuals to cause them to take their lives" (Lockerham,1978:45). This "sense of separation and isolation" undoubtedly refers to events which disrupt or can threaten to disrupt an individual's social relationships. It is this disruption or potential disruption of social ties and the ensuing ramifications which are seen by Dodge and Martin (1970:60) as being the most potent source of stress for the individuals involved.

3.3 Indicators of Stress: Smoking and Stress

We have observed so far that in an attempt to reject the addiction model of cigarette smoking, Stephney (1978:198) and others have proposed that the underlying reason why people smoke cigarettes is because smoking can be used as a "psychological tool". Specifically, cigarettes are assumed, due to their pharmacological properties, to be able to help individuals mediate stressful situations. We have also observed that it is believed that most stress is socially induced. Thus we are lead to state the following proposition: The incidence of cigarette smoking in a population varies directly with the extent of socially induced stress in that population.

The measurement of the incidence of smoking within a population is easy enough through the use of national surveys. Yet, how does one measure the extent of socially induced stress within such a population? While theoretically possible, at present even crude measures of the differential degrees of socially induced stress within a population are not present. The solution to this problem is not to reject the above postulate as untestable, but to link the concept of stress to variables which can be measured. It is this route which was taken by Gibb and Martin (1963) and Dodge and Martin (1970). In these studies, social stress was measured through the development of a series of postulates and logical assumptions which linked it to the concept of status integration; a concept which can act as an indicator in an empirical sense. This proposed course of action is consistent with that proposed by Hubert Blalock when he states that the solution to the problem of developing empirical indicators for abstract theoretical variables is to

> commit oneself on specific assumptions that can be incorporated into an auxiliary theory developed for the purpose of testing the theory in a particular research setting.
> (1968:7)

The necessity of pursuing this course can readily be seen when one examines Lockerham's, Susser and Watson's observation on the relationship between stress, anomie and suicide.

The unfortunate aspect of the observations made by Lockerham and Susser and Watson is that they assume anomie/egoism lead directly to stress and thus potentially suicide. The issue of just how anomie and stress are related in a sociological context, or how one causes the other is not ever considered. Regardless of the fact that a substantial gap exists between the two concepts. One refers to the sociological conditions of a population while the other refers to the "emotional-psychophysiological state of an organism". It is reasonable to assume, however, at a less general level, as Dodge and Martin have, that the disruption of social relationships can be stressful. Therefore, it would seem plausible to argue that those populations in which there is a lower level of disruption of social relationships would be those which, overall, would show lower levels of socially induced stress.

3.4. Socially Induced Stress and the Stability and Durability of Social Relationships.

The above observations lead us to the second proposition of our argument: the extent of socially induced stress in a population varies inversely with the stability and durability of social relation in that population.

In Dodge and Martin (1970) this particular proposition follows from a number of observations on the implications of the results of Schwab and Pritchard's (1950) studies on stress. Schwab and Pritchard developed a list of twelve "types of stress" of moderate and long duration. They are; (1) trauma, (2) infection, (3) financial reverses, (4) death of loved ones, (5) surgery, (6) fright, (7) chronic worry, (8) fatigue ...... overwork, (9) fatigue .... over travel, (10) rejection, (11) disappointment, and (12) conflicts. From this list the observation was made that many, if not all, of these factors can generate social induced stress. Specifically, the list seems to indicate that stressful situations can be correlated with those which "generally appear to be characterized by the threat of disruption, or actual disruption, of social relationships" (Dodge and Martin, 1970:62). Thus follows the second proposition.

While the above proposition has a logically appealing air about it, the data is old - 1950, and the argument is not as strong as one would like. However, as we shall see, information does exist which would support the proposition. Holmes and Rahes (1967) devised a measure of social adjustment. In doing so, they assumed that changes, no matter whether it is for better or worse, demand a certain degree of readjustment on the part of the individual. They thus imply that the greater the adjustment required the greater the stress induced. Table 1 lists those events which cause the individual to readjust to their social environment. These events are ranked from high to low.

As one can see, almost every element in Table 1 can be associated with the "stability and durability of social relationships". Death of spouse, divorce, marital separation, jail sentencing, marriage, or retirement, just to name a few, are life events which rank high on the Holmes and Rahe "Social Readjustment Rating Scale" and are intimately involved with the notion of social ties and relationships. Just as divorce entails the breaking of old ties, often not only with one's spouse but often with friends, so does marriage; especially if this occurs among the young. To be young and married, for example, is to exist within a social framework alien to the majority of one's cohort

TABLE I

Holmes and Rahe Social Readjustment Rating Scale

Rank*	Life Events
1	Death of spouse
2	Divorce
3	Marital separation
4	Jail term
5	Death of close family member
6	Personal injury or illness
7	Marriage
8	Fired at work
9	Marital reconciliation
10	Retirement
11	Change of health of family member
12	Pregnancy
13	Sex difficulties
14	Gain of new family member
15	Business readjustment
16	Change in financial state
17	Death of close friend
18	Change in different line of work
19	Change in number of arguments with spouse
20	Mortgage over $10,000
21	Foreclosure of mortgage or loan
22	Change in responsibilities at work
23	Son or daughter leave home
24	Trouble with in-laws
25	Outstanding personal achievement
26	Wife begins or stops work
27	Begin or end school
28	Change in living conditions
29	Revision of personal habits
30	Trouble with boss
31	Change in work hours or conditions
32	Change in residence
33	Change in school
34	Change in recreation
35	Change in church activities
36	Change in social activities
37	Mortgage of less than $10,000
38	Change in sleeping habits
39	Change in number of family get-togethers
40	Change in eating habits
41	Vacation
42	Christmas
43	Minor violation of the law

(Holmes and Rahe, 1967:216 table 3)

*Rank is from high to low

group. Social contact and support from individuals occupying a similar set of status configurations is thus possibly reduced. This particular fact can make readjustment that much more difficult. Furthermore, as will be discussed later, these individuals may be inadequately prepared to cope with the demands of married life. These factors may result in states of alienation/normlessness and role conflict. Divorce is often a solution to individuals in such a situation. This high stress state often ends, as the first proposition would indicate, in the disruption of what is initially intended to be a highly durable "social relation".

Empirical support for the position taken above, that stress is related to the durability of social relations and that smoking can be related to socially induced stress can be found in a recent study by Robert Gunn. Gunn observed

> that a number of life changes lead to increased anxiety, which in turn produces maladaptive psychological and/or physiological responses in individuals (Tennant & Andrews, 1978). Based on these observations, we might expect that life stress itself, or even the distracting nature of many life pressures, coupled with the well learned smokers' pattern of using cigarettes to alleviate anxiety could easily affect motivation to quit smoking.
> (1983:83)

In testing this position, Gunn interviewed 231 individuals before the start of a series of "STOP Smoking Clinics". Each respondent was requested to fill out a basic questionnaire along with a "Life Change Inventory" of fourteen items. This scale was a modified version of the Holmes and Rahe Social Readjustment Scale. The results of this study indicate that high stress scores were "strong predictors" for men of not stopping smoking and dropping out of the clinic (χ^2=16.7, $p<.005$). This was not the case, however, with the women in the sample. The results of this study seem to indicate that, for males at least, stress, smoking and the disruption of social relations can be linked together in a causal model. The strength of the relationship between life stress and the ability to give up smoking, however, must be questioned. Gunn argued, using χ^2 as a measure, that life stress can act as a strong predictor. However, when one calculates a measure of association for nominal level contingency tables it becomes apparent that the relationship, while evident, is weaker than first thought. Using Pearson's Mean Square Contingency Coefficient (ϕ^2)* one arrives at a measure of association between stress and the ability to quit smoking of .19 for men. Since ϕ^2 can vary from 0 to 2 one must assure that Gunn has claimed more of his data than he should. These results would lead one to speculate that the relationship between stress and smoking may not be as strong as Stephney believes.

In the previous discussion we looked into various indicators of unstable relations. At this point it may be relevant to further examine the nature of these indicators. Holmes and Rahe argued that life events such as death, divorce, marital separation, retirement, unemployment or serving a jail term, for example, were indicators of a need for social readjustment. Although these life events are all potential indicators of unstable relations, they can be further classified into two broad groups. First, there are those indicators which result from the occasional and inevitable breakdown of an individual's social relations. Death and retirement are but two life events which fit into this category. Secondly, there are those indicators of unstable relations which result when an individual breaks with social norms or expectations - i.e. divorce, criminal activities, having an illegitimate child, etc. It is the latter of those two indications which is of particular interest. This is a result of the nature of the data being used. We do not have the data which would allow one to adequately classify individuals on the basis of the stress experienced by the breakdown of social relations. We can, however, classify individuals in term of those who occupy status configurations which are socially sanctioned and those which are not. Given this position we can now proceed with the development of our argument.

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*ϕ^2 is simply the χ^2 value for the contingency table divided by the sample size.

3.5 The Determinants of Stability and Durability as Related to Status Expectations

Gibbs, Dodge and Martin argue that due to our inability to measure the stability and durability of social relationships in a population, it is necessary to determine under which conditions members of populations are likely to have stable and durable relationships. In evaluating these conditions it is observed that

> society is viewed as a complex arrangement of social statuses or "positions" inter-related in lesser social structures through socially defined and sanctioned demands and expectations that incumbants of given statuses are permitted and expected to make upon incumbents of their specified statuses.
>
> (Dodge and Martin, 1970:62-63)

Thus every individual in society experiences demands or "role expectations" which are the result of occupying a particular status or status configuration. Thus, it is postulated, that individuals, in order to maintain durability and stability in social relations, must conform to the demands and expectations individuals make upon them - by virtue of their status. It must be expected, however, that not all individuals conform to role expectations with the same degree of success. Thus one is lead to the third proposition: the stability and durability of social relationships within a population vary directly with the extent to which individuals conform to the patterned and socially sanctioned demands placed upon them by others.

Although conformity to the demands and expectations of others by individuals (a form of voluntaristic nominalism attributed to Max Weber by Gibb and Martin (1964:17)) is important for the creation of stable and durable social relationships, it is not sufficient. Rather, following Durkheim's "social realism" requires we not only recognize the demands placed by others, but also recognize the "authority that underlies the requirement for conformity" (1964:17). The recognization of a sanctioning authority, independent of the individuals, independent of a particular network of social relation, is crucial in that otherwise "the necessity for conformity is fortuitous" (1964:18).

Otto Klineberg when considering why people conform observed that

> the individual who does not practice the customary behavior related to the social and economic life of the group will soon be regarded as outside the system of reciprocal rights and duties upon which the community

> may depend; if there is a system of gift exchange, for example, and he fails to return an equivalent value, he will simply not be included in the next round of gifts, and will not be able to obtain what he wishes in exchange.
>
> (1954:457)

Here one finds an example how nonconformity to certain "patterned and socially sanctioned demands" produces a rupture in the individual's social relationships. Being placed outside the system of reciprocal rights effectively reduces the "stability and durability" of one social relationships.

3.6 Conformity to Demands and Expectations and Role Conflict

The next postulate in the argument deals with the relationship between conformity to demands and expectations, and role conflict. Occupying a certain status or status configuration confers upon individuals certain rights, duties, and obligations. In other words, occupying a status entails accepting the role associated with that particular status.

Fulfilling the role(s) associated with a particular status in itself would not be too difficult, if it were not the case that individuals occupy several statuses simultaneously. Thus the possibility is increased that conformity to the socially sanctioned demands and expectations of one status will be in conflict with those of another. This conflict results from inconsistencies in the expectations of two or more roles. A man may be a travelling salesman or a shiftworker thus fulfilling a role which entails long periods of absence from home or irregular working hours. This in itself may not be a problem if it were not for the fact that it may place him in conflict with another simultaneously occupied role - i.e. that of a husband or father. The demands and expectations of the two roles are in conflict with each other. The fourth proposition thus reads: the extent to which members of a population conform to the patterned and socially sanctioned demands placed upon them by others varies inversely with the degree to which members of that population are subjected to role conflict.

Zajonc and Waki (1961) observed that role conflict resulting from problems with conformity is more of an exception than the rule. This results from the fact that individuals in learning a set or norms are more often subject to "congruent rather than incongruent sources of conformity pressures". Role conflict, however, does exist. Two basic types of role conflict can be distinguished. They are:

> (1) Status-produced role conflict, developing from incumbency in a single status subject to incompatible expectations or obligation; and
> (2) contingent role conflict, resulting from incumbency in two statuses, both of whose legitimate sets of expectations cannot be fulfilled simultaneously.
> (Gullahorn and Gullahorn, 1969:423)

As is obvious both these types of role conflict result from the inability of an individual to conform to one set of demands, expectations or obligations without being in conflict with another expectation (status-produced role conflict) or another status (contingent role conflict). These observations would lead one to argue that an increase in conformity would seem to imply a decrease in role conflict as stipulated by our last proposition.

Re-examining our typology of role conflict it is possible to argue that the first type of role conflict (status-produced) is simply a special case of the second (contingent). Consider the following definitions:

> Social status refers to a position within a social system as it is defined in terms of the configuration of expectations relating the position to the system as a whole and to each other position within the system. (While) Social role refers to the incumbent's sets of expectations associated with occupying a specific status.
> (Gullahorn, Gullahorn, 1969:418)

Given these definitions it would seem likely that if incompatibility between expectations and obligations occur then incompabilities between roles exist. However due to the relationship between roles and status one is lead to believe that if "role conflict" exist it is most likely to result from the simultaneous occupancy of two or more statuses which are in themselves incompatible. These particular point leads us to our fifth proposition.

3.7 Incompatible Statuses and Role Conflict

Getzel and Guba observed that "role conflict ensues whenever an actor is required to fill one or more roles whose expectations are in some particular inconsistent" (cited in Gibb and Martin, 1964:20). Such role conflict is reduced in those individuals who tend to be found simultaneously occupying statuses that are compatible. Compatible statuses are thus those that can be "occupied simultaneously without inter status role conflict". Incompatible statuses are those that cannot be occupied simultaneously without ensuing conflict. This results from the fact that "conformity to role expectations associated with one or more statuses interfers with ... (the) ability to live up to role expectations associated with other status(es)" (Dodge and Martin, 1970:64). This is not to imply that one is in role conflict or that one isn't. Rather, that due to the complexity of interstatus relationships, a great degree of variability exists with respect to the extent of the role conflict experienced by individuals. Thus follows the fifth proposition: the extent to which members of a population are confronted with role conflict varies directly with the extent to which members of that population occupy incompatible statuses. This particular proposition flows directly from Gullahorn and Gullahorn's (1969) observations, as outlined above, on the nature and origins of role conflict.

Evidence which links this proposition to our central concern, the variability in the incidence of smoking among various populations, can be found. Consider the five following combinations of marital and household status encountered by females:

SC1: Single and the head of the household;
SC2: Single, the head of the household in which there are children under 18 years of age;
SC3: Single, a daughter and living at home;

SC4: Married, head of household with children less than 18 years of age;

SC5: Divorced, head of household with children less than 18 years of age;

If one was to group these combination of statuses into those which show the most compability between marital and household statuses and those which show the least compatible, it would be generally accepted that SC4 (married/with children)and SC3 (daughter living at home) would be those most compatible, while SC2 (single/head of household with children) would be the least. To be divorced with children and the head of household (SC5) while being low on the list, in terms of compatibility, is not as low as CS2. To be single and head of household (SC1) while not as incompatible as SC2 and SC5 does, in terms of the total population, exhibit some strains of incompatibility. There may exist pressures on young females to live with their parents. Older females experience socially induced pressures to marry. Table 2 ranks these combination of statuses in terms of their internal compatibility and the incidence of smoking.

The evidence presented in Table 2 supports the general thrust of our argument. Those population which exhibit the highest levels of smoking are those which are composed of the least compatible statuses. The highest incidence of smoking (56.0%) was observed among those individuals whom are single, head of households in which live children under 18 years of age (SC2). The lowest incidence of smoking (34.2%) occurs among those females who are daughters living at home. The underlying reason for the existance of these occurrences is socially induced stress. This is

Table 2

Ranking of female statuses in terms of status compatibility and incidence of smoking

Grouping	Status Combination	Incidence of smoking* %	N
High + compatibility	SC3	34.2%*	(1683)
High compatibility	SC4	38.2	(3701)
Medium compatibility	SC1	44.6	(908)
Low compatibility	SC5	50.4	(375)
Low + compatibility	SC2	56.0	(209)

* data for 1981/82

stress resulting from role conflict due to status incompatibility.

At this point Gibb, Dodge and Martin felt that one more step was needed in their argument. They intended to link incompatible statuses with the notion of status integration. It is at this point where certain problems in their "theory" also begin to develop. However before dealing with these issues lets us first review this last proposition of Gibb, Dodge and Martin.

3.8 Incompatible Statuses and Statuses Integration

In an attempt to arrive at the final postulate a fundamental assumption is made by Gibb, Dodge and Martin. It is "that frequent or usual combinations of ranks (statuses) involve little conflict and therefore are consistent..., while unusual combinations are inconsistent" (Jackson and Curtis, 1968: 136-137). With this assumption comes another: interstatus mobility exists. Without this mobility, individuals would be locked into incompatible statuses and the ensuing role conflict. Without mobility, status configurations which are incompatible would have the tendency to be more frequently occupied than otherwise would be the case. The above comments leads one to state that incompatible status configurations should be occupied less frequently than are configurations which exhibit a greater degree of compatibility. Gibb, Dodge, and Martin offer three reasons as to why this would be the case. They are:

1. The incompatibility of certain statuses may be socially recognized and thus the occupancy of these statuses

simultaneously may be discouraged or made impossible through various forms of social control. For example, to be female, 15 years of age, a student and mother is a configuration of statuses which is socially discouraged and has few social supports;

2. Combination of statuses may be so painful to the incumbents that they move out of them whenever possible; and
3. If an individual does not voluntarily abandon incompatible statuses one or more of the statuses may be deprived of him/her. To be an airline pilot and 70 years of age have traditionally been seen as incompatible roles. To resolve this "problem" mandatory retirement at sixty-five is imposed on these individuals to ensure that these roles are not occupied simultaneously - whether one wants it or not.

Thus due to the existence of social controls, both formal and informal, and the possibility of mobility from one status/role to another, it would appear that if two or more statuses have conflicting (incompatible) roles, they will be occupied simultaneously less frequently than those statuses with roles which do not. Rephrasing this one may state, following Dodge and Martin, that

> the degree of compatibility between two or more statuses will be indicated by the extent to which they are occupied simultaneously. The extent to which the actual pattern of occupying statuses conform to a pattern is referred to as the degree of status integration.
>
> (1970:66)

Status integration in the original formulation of the argument by Gibb, Dodge and Martin refers to the degree of integration among status. Thus they were lead to their fifth proposition: the extent to which members of a population occupying incompatible statuses varies inversely with the degree of status integration in that population. To illustrate this proposition let us consider a hypothetical population in which individuals occupy only two statuses relating to marital status and occupation. If 100 percent of the individuals with occupation X were married then there would be maximum integration between these occupational and marital statuses. One would thus assume, since status mobility exist, that the two statuses are compatible. Since every person in a population occupies a status configuration, the degree to which individuals occupy compatible statuses is a function of the degree to which the occupied status configurations conform to a pattern. A population with minimum status integration would be one in which no knowledge about the probability of occupancy of other statuses can be gained from the knowledge of one status of an individual. Occupancy of statuses would then be random. Conversely, a population with maximum status integration would be one in which knowledge of one status of an individual would lead one to "predict with certainty all undisclosed statuses" (Gibb and Martin, 1964:26). For this situation to exist, given inter-status mobility, such a population would be one in which there exist a high degree of compatibility between statuses, - otherwise the particular configuration would cease to exist. If in such a hypothetical population conflict between roles did develop, individuals would search out other status configurations, thereby reducing the degree of status integration in the population.

Gibb's, Dodge's and Martin's argument has to, at this point, be questioned. As has already been noted the degree of compatibility between status has been defined "by the extent to which they are occupied simultaneously". Thus the degree of status integration in a population is seen simply as a function of the frequency to which similar status are occupied simultaneously. This simplistic mathematical representation of status integration is inadequate. For example, it does not recognize the possibility that certain statuses may be compatible, yet, due to economic reasons infrequently occupied. To be a doctor, male, and between the ages of 30 and 50 may be an entirely consistent set of statuses. Yet, due to economic constraints, there exist a limited number of doctors. The statuses are thus infrequently occupied. Similar problems arise when one considers the prestige value of statuses. As Gibb and Martin (1964) observe it may be possible that there exists two or more statuses with conflicting roles which have such high prestige value that individuals persist in occupying them despite their conflicting roles. Prestige can increase the degree to which certain status are occupied, thereby creating a situation where frequently occupied statuses are not those exhibiting a low level of role conflict but rather the reverse. Furthermore, the prestige of certain status can change over time. Gibb and Martin's reply to these arguments is

> it can only be assumed that a strain towards consistency is also operating in such a way as to bring about an eventual modification of the roles so as to reduce their conflict.
> (1964:28)

If auxiliary hypotheses such as this add to the theory, in that they would help define those conditions under which the argument can be expected to apply, they might serve to increase its overall testability. Unfortunately this, as Chambliss and Steele note, is not the case.

> Rather than specifying conditions that aid in testing the theory, they afford auxiliary explanations for any negative evidence that might be found. For example, exceptions to the theory can always be ignored on the grounds that within the statuses considered there exists a "strain of consistency" or if that tack fails, it could be asserted on the basis of ex/post facto evidence that the statuses considered were not really "salient for that population".
>
> (1966:525-526)

In addition to these measurement problem, others exist with respect to this fifth proposition. The fifth proposition is simply a definition. Chambliss and Steele find this fact rather irksome.

> This is most obvious (and most bothersome) with respect to the central concept of the theory, the concept of "status integration". Operationally, status integration is defined as "... the relative frequency with a status configuration is occupied ...". The only suggestion of a theoretical definition is, "The extent to which individuals occupy incompatible statuses in a population ...". But this appears as a postulate, not a theoretical definition. ... Postulate 5 is simply a tautology.
>
> (1966:525)

Due to these rather serious problems with the fifth proposition it will be dropped from our auxiliary theory. Therefore rather then ranking status configurations on the degree to which they are occupied, status configurations will be ranked thru argumentation or by the citation of illustrative examples regarding the degree to which individuals occupy incompatible statuses. Our auxiliary theory ends with Proposition 5. The need for ex/post factum rationalizations of those inevitable exceptions to the "measure", as defined by Gibb, Dodge and Martin, will hopefully be eliminated.

3.9 Restating the propositions

The central proposition being dealt with in this thesis is: the incidence of cigarette smoking in a population varies directly with the extent of socially induced stress in that population. As has previously been stated empirical measures of socially induced stress are not presently available. We were thus forced to develop an auxiliary theory in an attempt to link stress to some other variable which could be measured. This variable is status inconsistency. The argument leading from stress to status inconsistency is now restated.

Proposition 2: The extent of socially induced stress in a population varies inversely with the stability and durability of social relationships in that population.

Proposition 3: The stability and durability of social relationships within a population varies directly with the extent to which individuals conform to the patterned and socially sanctioned demands placed upon them by others.

Proposition 4: The extent to which members of a population conform to the patterned and socially sanctioned demands placed upon them by others varies inversely with the degree to which members of that population are subject to role conflict.

Proposition 5: The extent to which members of a population are confronted with role conflict varies directly with the extent to which members of that population occupy incompatible status (i.e. status inconsistency).

From the above propositions follows the hypothesis the incidence of smoking varies directly with the degree of status inconsistency in a population. Stephney's thesis can therefore be tested. Those populations which exhibit the highest incidences of smoking should be those which exhibit the least degree of status inconsistency and, according to the argument, suffer from the highest levels of socially induced stress.

3.10 Methodological Issues as they relate to the Measurement of Status Integration

Gibb (1969), Gibb and Martin (1964, 1966, 1968, 1974, 1981), Dodge and Martin (1970) and their critics Chambliss and Steele (1966), Hagedorn and Labovitz (1966, 1968), Li (1971) and Schalkwyk et al. (1979), for example, have noted that there exist numerous problems in the actual measurement of status integration or status inconsistency. As has already been observed objections can be raised with respect to the actual measurement of the degree of status integration as proposed by Gibb, Dodge and Martin: This problem and the resulting need for ex/post factum rationalizations has been dealt with and resolved. Other problems, however, do exist. They result from inadequate data, over simplification, measurement errors, infrequently occupied statuses and small sample size, errors resulting from the "masking of status integration" or status inconsistency, and finally the issue of how does one determine which statuses to use. The issues of over simplification and errors due to "masking of status integration" are problems encountered if one wishes to use the measures of status integration as proposed by Gibb, Dodge and Martin. Having rejected their definition of what makes two or more status compatible, and thereby dropping their mathematical measures of status integration, these problems have been avoided. The following discussion rather than summarizing the above mentioned works, deals with those remaining issues and problems that relate directly to the problems encountered in this thesis.

A basic problem arises when one attempts to examine statuses and status configurations in a population. What does one use to justify the selection of the statuses to be use in testing the primary hypothesis? More specifically which statuses or status configurations are the most important to the particular populations being examined? Due to the complexity of and interrelationship between statuses occupied by individuals Gibb and Martin suggest, ideally, "that a measure of status integration should consider all statuses in a population simultaneously" (1966:535). Given that this is impossible, due to data limitations, one is forced to pick and choose among certain statuses and status configurations. In an ideal situation data could be collected, given a suitably large sample, of all the relevant statuses. The ideal, however, seldom occurs. Furthermore, one must live with the realization that

> sociological theory provides no rules for identifying statuses or for differentiating between them in terms of importance.
> (Gibb and Martin, 1966:588)

Gibb and Martin's solution to these problems was to, "in most instances", to accept "whatever census categories are available that seem to approximate social status" (1966:538).

While many of the problems encountered above still remain in this work, the data collection aspect of the study has been simplified. We are not examining the suicide rates in a population, the incidence of mental illness, nor mortality rates due to specific diseases, but rather the incidence of a fairly common phenomenon (among the living) - smoking. Census data is thus not our sole information source.

3.11 Research Data

In this study we shall examine how the incidence of smoking relates to status integration. The data source will consist of the results from a national stratified random sample of twenty-two thousand individual "in home" interviews conducted in Canada between 1981 and 1982. Approximately 10,000 interviews were conducted in 1981 and twelve thousand in 1982. The sample was stratified geographically and weighted using the results of the 1976 national census. In these surveys basic socio-demographic data of the individuals being interviewed was collected along with his/her smoking habits. This data source eliminates some of the problems inherent in using census data, however, as noted problems still exist. The status which we can identify and examine are again limited to those which can be identified on the existing data set. More data exist, however, and we are better able to manipulate it. One is not simply limited to sex, age, marital status and occupational status. Whether one is a son or daughter, unemployed or employed, a high school drop out or a university graduate, a home owner or an apartment dweller are all elements of data available. More extensive testing of the main hypothesis is therefore possible.

In addition to the above issues, problems are encountered in the actual measurement of the incidence of smoking within a population. Problems of consistency in the definition of what makes one a smoker have been documented by O'Rourke (1973:106). Smokers in this study will be defined as all individuals fifteen years of age and older (age limitations are a function of survey selection criteria) whom claim to be a cigarette smoker and smoke one or more cigarettes per day. A cigarette is understood to be both a tailor-made (machine made by manufactures) and roll your own product (home made cigarettes).

Honesty, especially among the young, is also an issue which reduces the representativeness of the data (O'Rourke, 1973:107; Rorke, 1975:302). These problems coupled with a persistent inability or unwillingness on the part of smokers to admit to the extent of their consumption (Bloom:1973; Warren:1978) further clouds the issue as to how reliable the data is in the first place. These problems are similar to those encountered in attempting to measure suicide rates (i.e. family pressure to have a death reclassified), and the mortality of specific diseases (misdiagonises). The problems encountered in using survey research data on tobacco consumption are common to those found in any other product classes and are to be observed in all countries.

CHAPTER 4

4. Three Hypothesis to Test the Smoking as a Psychological Tool Argument

4.1 Introduction

The main focus of this chapter is to determine whether or not stress and smoking are related phenomena. Previously we argued that the extent of socially induced stress in a population may be conceptualized as a function of the degree to which individuals occupy inconsistent statuses. From this argument was derived our central hypothesis: the incidence of smoking varies directly with the degree of status inconsistency in a population. If support for this hypothesis is found the Addiction Model of smoking will be weakened. If support for this hypothesis is found to be lacking the strength of Stephney's argument will in turn be questioned.

4.2 The Three Hypothesis

To determine whether the stress/smoking relationship exist, three sets of statuses configurations will be ranked with respect to the degree to which they are internally inconsistent. These three sets of status configuration rankings will serve as our measures of the likelihood of

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*. More than one set of status configuration rankings were considered as this form of replication will provide a stronger test of the central hypothesis.

stress being experienced by individuals occupying various status configurations. As we have seen certain status configurations are better integrated than others. Stress can also result from individuals occupying status configurations which are not compatible with the existing social order. Status configurations, and their ranking, will be analyzed with this in mind. Furthermore, while the overriding concern will be one of ranking status configurations in terms of status inconsistency, we shall always explain how these status configurations produce variable levels of stress.

The three status configurations considered will be composed of the following variables: sex, age, marital, parental and employment statuses. The first set of status configurations to be considered will deal with the relationship between three variables: sex, age and marital status. The second set of status configurations will be composed of those individuals who are head of households, and are involved in various sex, age, marital and parental status configurations. The third set of status configurations will be made up of male and female household heads in various sex, age, marital, parental and employment statuses.

One's sex, age, marital, parental and employment statuses, as we shall observe, are crucial in differentiating among individuals and the conditions in which they live. From these sets of status configurations three hypothesis were developed. They are:

> Hypothesis 1: The incidence of smoking will vary directly with the degree of status inconsistency experienced by individuals in various sex, age and marital configurations.

Hypothesis 2: The incidence of smoking will vary directly with the degree of status inconsistency experienced by household heads in various sex, age, marital and parental status configurations.

Hypothesis 3: The incidence of smoking will vary directly with the degree of status inconsistency experienced household heads in various sex, marital, parental and employment status configurations.

These three hypothesis will be used to test the smoking/ stress relationship.

The next step in the process will be to operationally define the variables. Then we shall proceed to classify the three sets of status configurations with respect to their ranking on a scale which measures their degree of status inconsistency, and thus the degree of socially induced stress postulated to be experienced by individuals occupying the various status configurations. It is expected that those individuals who occupy statuses which are highly inconsistent will experience the highest levels of socially induced stress. Those who rank lowest will be those who, as we shall demonstrate, experience the lowest levels social induced stress. The operational definition of the variables will first be considered.

4.3 The Variables - Operational Definitions

→ 7.

The variables considered in this analysis are: sex, age, marital status, parental status, employment status, occupation and whether or not respondent smokes. The operational definition of these variables, with the exception of sex, are:

1. Age. Respondants were asked "What was your exact age on your last birthday?". If the respondents refused, the interviews were requested to estimate the respondent's age. While this last procedure, along with the potential for lying about one's age by the respondent, introduces an unknown degree of error in the data, hopefully it will be somewhat compensated for by the classification of respondents into seven age categories: 15-19, 20-24, 25-34, 35-44, 45-54, 55-64, 65 +. This classification was necessary due to the limited sample size.
2. Marital Status. Respondants were asked "What is your marital status?". They were classified into one of three categories: single, married, or widow(er)/divorced/separated.
3. Parental Status. Whether or not there were children in the household was determined by asking the respondent "Are there any children under 18 years of age living at home?". The response is simply yes or no. One's parental status is therefore simply defined in terms of whether or not there are children at home. This classification may create problems in dealing with those individuals living at their parents home with younger or older brothers or sisters. In an attempt to rectify this problem parental status is only considered for those individuals who define themselves as heads of a household.
4. Head of Household. This status was arrived at by asking the respondent "What is your position in this household?". All

respondents were classified into one of six categories: male head, female head, son, daughter, other male or other female. The first two classifications (male, female head) make up those individuals defined as heads of household. This classification is based on the individual's perception of his or her's role in the household.

5. Employment Status. Respondants were asked "What is your employment status?". Responses to this question were coded as "Working full time" if the respondent confirmed that they said that they worked more than 30 hours per week, "part time" if they said that they worked less than 30 hours per week. Those who were not employed were further classified as retired/pensioned, students, unemployed or homemakers. It is these six classifications which make up a respondent's employment status.
6. Smoking Status. Respondants are classified as smokers if they smoked one or more factory made or home made cigarette per day. They were simply asked "Do you smoke cigarette?" and classified by the type of product they used.
7. Occupation Status. The respondents were asked to state their occupation. This data was then coded into the following classifications: professional, executive/owner/manager, sales, clerical/other white collar, skilled labour, unskilled labour, and farmers.

The above seven variables, plus the respondent's sex, are used in the following analysis. Problems do exist with the data. Previously it was observed that a source of potential error was the measure of the extent of smoking in a population - under reporting occurs. Problems in the classification of respondents into various age categories have been noted, while the classification of widow(er), divorced or separated individuals into one group may further reduce the reliability of the data. While these issues can be raised, they are a function of respondent honesty and the way in which the data was coded. Presently, more accurate data is not available and this author is forced to make do with what is available.

Having defined the variables to be used in the analysis the next step will be combine these variables into various status configurations and to order them according to their ranking on a status inconsistency/stress scale. As an introduction to this analysis it may be helpful to briefly consider the nature of the stereotype being presented and how these stereotypical status configurations lead to variable degrees of status inconsistency and stress.

4.4 The relationship between status configurations and status inconsistency

Various status configurations are actively sanctioned or easily accommodated in Western society; others are not. The extent to which these status configurations are sanctioned or accommodated varies directly with the degree to which individuals occupying them experience status inconsistency and socially induced stress. These aspects of society help one determine what is normal and what is not. In the following discussion we shall attempt to show how social institutions and the roles associated with them interact to create status configurations of varying degrees of status inconsistency. The course followed will be one of outlining the various status configurations which individuals fall into as they go from being teenagers to retired senior citizens. "Normal" or sanctioned status configurations will be first outlined. Using these configurations as a base we shall then consider those status configurations which are sanctioned less.

We anticipate that individuals will remain single until they have acquired the necessary skills (i.e. educational) and psychological maturity necessary for a successful marriage. Legal constraints exists along with pressures from social norms, peer groups and family which may inhibit young individuals who consider marriage. In acquiring these skills we also anticipate that teenagers live at home with their parents. Legal constraints exist which make living on one's own difficult for a teenager. To sign a lease, a contract, requires that one be at least 18 years of age. Further economic constraints may exist as salaries are low and unemployment high among this age group.

If to be single and young is a highly status consistent state, one then may argue that to be married and older is also. This, however, is not necessarily true. The typical role in which we place a male between twenty-five and fifty-five is that of a husband, father and full time worker.

Inconsistencies may exist between the demands of one occupation and the correspondingly occupied roles of father or husband. The same is true of the female homemaker with children. The demands place upon a wife with a child may be at odds with her personal expectations or aspirations in life. These status configurations are, however, more status consistent then, for example, the unemployed father or the employed mother. Unemployment causes conflict between the socially sanctioned expectations of the husband as a breadwinner and his actual employment status.

The primary role of "breadwinner" among males, in Western society, is well documented. In one study Helena Lopata

> found that her female respondents 87 percent gave the bread winner role as the most important for the man. The role of the bread winner is at the core of the father in the American society. This is not only seen as true among men but also among women. For example, in a study of women about two-thirds of them considered the bread winner role to be the father's most important function; "husbanding and child raising ranked a poor second and third."
>
> (Cited in Bell, 1975:345)

The loss of this role can be a very trying and stressful time in an individual's life. This loss of employment affects, for various reasons, the lives of both males and females. In addition to the financial hardships experienced by such individuals, Ruth Cavan has observed a number of other areas where unemployment causes further changes and stress. They are a

> loss or reduction in employment and hence in income among these families poses a many sided threat: loss of the symbols of social class status; eventual probable application for relief; disorganization of personal reactions; disorganization and rearrangements of roles within the family; (and) downward social mobility
>
> (1974:405)

Conflict between the institutional expectations placed upon the married male and his actual employment status results in increased stress and status inconsistency.

Working mothers, on the other hand, encounter difficulties arising from her employment status. Social norms exist which place certain expectations upon her with respect to her duties towards her children. The lack of free day care and other institutions designed to care for the young child also aid in seeing this combination of roles as being one which is not socially sanctioned.

Marriage as an institution is socially sanctioned for two basic reason: life long companionship and procreation. The childless parent therefore experiences a greater degree of status inconsistency than those with children. Examples of this are to be found in how childless parents respond to their situation. In one American study, by Marcia Ory, it was found that

> many nonparent couples indicate that they countered pronatalistic pressures by minimizing social contact with parents and friends, seeking new friends among the child free, or joining organizations (such as the national organization for non-parents) that provided support and acceptance for the decisions to remain childless.
>
> (1978:538)

Such moves result from conflict between the situational context in which these individuals find themselves and a dominant set of social expectations. Furthermore, Ory found that

> more than two-thirds of the nonparents also feel pressures to conform to the "socially acceptable" ideal of two to three children .... An examination of respondent perception of others' attitudes towards childless couples reveals a wide spread application of social sanctions proscribing childlessness as underside ... the majority of parents and non parents alike fell that the dominant attitude is negative.
>
> (1978:535)

These feeling results from occupying statuses which are not ideally integrated into an overriding set of social expectations and norms. To be a parent and, for example, to be between thirty and fifty generally implies that children are present. If they are not pressures exist which make this particular status potentially "unpleasant" and status inconsistent for those occupying it.

Status inconsistency may arise from being a childless parent. Status inconsistency may also be high among parents. This results from the fact that most individuals occupy more than one role simultaneously. Consider the example of the husband/fathers who works full-time. At a minimum this individual has the potential for conflict between his career and his role as husband and father. The demands of being a father and the potential for conflict between this role and the demands and expectations placed upon him by a career are something not encountered by the childless husband. Steven Nock has observed that childless couples can appear "exceedingly happy" (1979:22). This possibly results from, in some cases, the reduced conflict placed upon them by occupying a reduced number of conflicting statuses. The number and degree to with an individual occupies conflicting roles directly affects the degree of status inconsistency experienced.

Divorce, the anthesis of marriage, a most valued institution, is obviously a state of high status inconsistency. The seriousness of divorces and its impact on individuals has been considered by many authors. William Goode has observed that

> whether or not we judge this segment of the population or this rate to be large, it seems at least likely that in our society the group impact of divorce is much greater than in most others. We have elsewhere noted some of the behavior indices of this concern. They may be summarized as follows: (1) A wide spread condemnation of the extent of divorce and its increase; (2) the emotional difficulties suffered by individuals in the divorce; (3) the number of panceas offered as general solutions for the problem; (4) its frequency as an object of clinical research; and (5) the development of organizations and experts whose aim is to ameliorate this distress.
> (1969:502)

This concern would seem to indicate that the status is fundamentally at odds with socially accepted norms and roles. Stress can result from these status configurations on a number of fronts. Two crucial ones arise from encountering difficulties due to the nature of our kinship system and from financial concerns.

In Western society the kinship system and divorce are not well integrated. In general our society "fails to clearly define acceptable behavior patterns for this experience" (Goode, 1969:502) and furthermore fails to furnish unambigious arrangements for a series of problems resulting from divorce. Goode (1969:502-505) identifies four such areas of concern:

1. There does not exist any ethical imperatives for relatives or friends that would make them feel constrained to furnish material or emotional support during divorce;
2. There exist an ambiguity which is centered around the readmission of divorcees into their former kinship structure or of a new one;
3. Our kinship system does not point out avenues for the formation of new families; and
4. Ambiguities exist with respect to the proper behavior and emotional attitude of the spouses directly concerned. In particular the proper relationship between the divorced spoused is not clearly defined.

The financial difficulties encountered by the divorcee are also indicative of a status which is neither accommodated or sanctioned. In one study it was found that

> (b)etween 1968 and 1974, the real income of married couples increased 21.7 percent, in contrast to decreases of 29.3 percent for divorced women and 19.2 percent for divorced men. Women who are divorced or separated by 1974 had money incomes of just about half that or married women and their family.
>
> (Espenshade, 1979:617)

Divorce is thus seen as a state of high status inconsistency. The presence of children simply makes this status that more stressful and inconsistent with the prevailing set of social norms.

Increasing age results in a reduction of the occurrences of status configurations which are observed to be high in terms of the degree of socially induced stress experienced. The responsibilities of being a parent are reduced if not eliminated completely. Conflict resulting from one's career are reduced as retirement is a normal state of affairs for males and females over sixty years of age. The pleasures of being grandparent, increased mobility (geographic), freedom from the mundane responsibilities of housework or career are all potential elements of the post-parental life style. It is this reduction of responsibilities coupled with the possibility of increased freedom which has resulted in the observation that the post-parental period is one which is at the low end of the social stress continum. The exact nature of this will be dealt with in more detail later in this chapter.

In the above discussion various status configurations have been dealt with. Two observations can be drawn from the discussion. First, as an individual proceeds from being a teenager thru to retirement variable levels of socially induced stress are observed. The teenager living at home and the post-parental couple are seen to be low on the stress continum. The middle years of one's life, those typically associated with being a parent are somewhat more stressful.

Secondly, in a given cohort group individuals can occupy different status configuration, all of which can categorized in terms of the degree to which they experience socially induced stress. Teenagers are a typical example. Rating teenage status configurations from low to high on a stress continum one will place teenagers living at home at the low end of this continum and divorced teenagers with children living on their own at the high end. In order of increasing stress we would place single teenagers living on their own, married teenagers and married teenagers with child between these two end points.

Utilizing these two observations it is now possible to develop the scales used to test the three hypothesis outlined previously.

4.4.1 The First Scale: SEX, AGE AND MARITAL STATUS CONFIGURATIONS

Status configurations resulting from combinations of three variables, sex, age and marital status, were ranked on a six point status inconsistency/stress scale. These status configurations and their ranking are illustrated in Table 3. The status configurations in Table 3 have been first divided into three categories (High, Medium and Low) in terms of their status inconsistency. Each of these two categories are further divided into two subcategories (High or Low). When dealing with these categorizations the following convention will be used. A ranking of "high" will refer to all status configurations classified as being high in terms of status inconsistency. "High (high)" will refer to those status configurations considered as being most status inconsistent. "High (low)" will refer to the next highest level of status inconsistency - and so forth.

In Table 3 the following status configurations have been classified as being low on the status inconsistency stress scale: single males less than twenty-four years of age, single females less than twenty, single males and females who are older than fifty-four years of age, married women over fourty-five years of age, married men over sixty-four and

Table 3

Ranking of males and females with respect to the degree of status inconsistency/stress experienced by various age and marital status configurations

Status inconsistency/Stress					
HIGH		MEDIUM		LOW	
HIGH	LOW	HIGH	LOW	HIGH	LOW
M, MR, 15-19	M, MR, 20-24	M, S, 25-44	M, MR, 25-64	M, S, 20-24	M, MR, 65 +
M, DWS, 15-24	F, MR, 20-24	F, S, 25-44	F, MR, 25-44	M, S, 55 +	M, S, 15-19
F, MR, 15-19	M, WDS, 25-64		M, S, 45-54	F, MR, 45-64	F, S, 15-19
F, WDS, 15-24	F, WDS, 25-54		F, S, 20-24	F, S, 55 +	F, MR, 65 +
			F, S, 45-54		F, WDS, 65 +
			F, WDS, 55-64		
			M, WDS, 65 +		

Legend: SEX; males = M, females = F

MARITAL STATUS; single = S, married = MR, widowed, divorced or separated = WDS

AGE; the numeric values refer to the age span being considered widowed women over sixty-four years of age. Let us first consider the younger individuals in this classification.

Among those who are less than twenty years of age approximately 99% are single, and in our sample three quarters live at home. A high degree of consistency in terms of occupied statuses exist within this group. The stresses of life are at a minimum - family, financial and social responsibilities are to a large degree missing. The same position can be taken for females who are less than twenty years of age. Males between twenty and twenty-four are also seen to occupy a low stress status, but to a lesser degree than their younger counterparts.

Females and males whom are married and over fourty-four and sixty-four years of age respectively are also placed in this low stress, low status inconsistent category. This stage in a married individual's life, a post-parental period, is a time of reduced conflict. The female is freed as generally the last child has begun to attend school.

Furthermore, as the children begin to leave home the parents no longer need to act as role models, economic pressures and responsibilities are reduced. It is a time of

> new freedom: freedom from the economic responsibilities of children; freedom of mobility (geographically); freedom from housework and chores; and finally freedom to be one's self for the first time since children came along. No longer do the parents need to live the self consiously restricted existence of models for their own children.
> (Deutscher, 1969:442)

This reduction in the conflict between personal aspirations and the roles imposed on the married with children results in an overall lowering of the stresses experienced. Married males have not been included in this particular low stress category until they are over sixty-five, as younger males are still involved, in a moderately stressful series of roles.

These post-parental/pre-retirement males, in the twilight of their careers, must learn to cope with the realization that advancement, something many have strived for in their life, has been curtailed. They are expected to wait out their time to retirement. This aspect of their employment life coupled with the increased need to prepare, financially, for retirement places added strains on the "breadwinner" of the household. Also some financial obligations may still exist as the older children pursue higher levels of education. These factors along with the traditional stresses and strains experienced by married individuals helps place these males in the medium stress category.

The second to last group of individuals to be classified in the low status inconsistent category are single males and females over fifty-five. Among females in this age group the conflicts experienced at younger ages between careers and parenthood (Cherlin, 1980; Wilkie, 1981) has been reduced. Among both males and females the conflict between personal choice and social expectations in terms of marriage are reduced. Furthermore, for the first time since their early twenties these individuals are experiencing contact with a growing group of unattached (i.e. widowed) individuals. Role conflict, and social isolation are on the decline; less status inconsistency and stress are encountered.

Widowed or divorced women, sixty-five years of age and older are also seen as being low in terms of status inconsistency. These females occupy the dominant "marital status" among women over sixty-four years of age. More than fifty percent of all women over sixty-four are either widowed, divorced or separated (see Table 4). Having such a large cohort group these women, through peer group interaction, are better able to alleviate the stresses and strains experienced by becoming a widow. Emotional, social and financial help from friends and family are, unlike in the case of divorce, available.

The last refinement necessary in classifying individuals in this low stress, low status inconsistency category is to further split this group into high and low categories. Single males between twenty and twenty-four and over fifty-four years of age, single females over fifty-four and married females between fourty-four and sixty-four years of age have been classified as experiencing slightly more stress, role conflict and status inconsistency than the remaining status configurations in the low category. The reason the "low" category in Table 3 has been broken up in this manner are simple extentions of the arguments presented above. For example, it has been argued that it is less stressful to be single and a teenager than to be single and between twenty and twenty-four, older single adults are likely to experience more isolation and loneliness than their married or widowed counterparts (i.e. family support exist).

Table 4

Male and Female Marital Status Occupancy in Canada -1978

Percent By Age Group (thousands)

	<20	20-24	25-34	35-44	45-54	55-64	65 +
Males	(1,218.4)	(1,128.5)	(1,926.2)	(1,359.0)	(1,235.6)	(967.4)	(925.6)
Single	98.7%	71.4%	21.8%	8.4%	7.9%	7.8%	9.1%
Married	1.3	28.2	75.6	87.8	87.6	86.4	74.8
Widowed/Divorced	0.0	0.4	2.6	3.8	7.7	5.8	16.1
Females	(1,166.2)	(1,119.1)	(1,911.7)	(1,330.7)	(1,243.2)	(1,055.5)	(1,209.6)
Single	94.0%	49.2%	13.8%	6.4%	6.0%	7.3%	10.0%
Married	5.9	49.7	81.9	86.8	83.5	71.5	39.4
Widowed/Divorced	0.1	1.1	4.3	6.8	10.5	20.2	50.6

Source: Market Research Handbook - 1981 p. 188 - 189

In Table 3 the following statuses have been ranked as being "high" in terms of status inconsistency: married males and females between the ages fifteen to nineteen years of age, widowed, divorced or separated males and females between fifteen and fifty-five. The classification of divorced or widowed individuals who are less than fifty-five years of age in the high status inconsistent or stress category results from a number of observations. First, the majority of these individuals are divorced - not widowed. Divorced individuals, as Table 4 demonstrates, in this age group exist in infrequently occupied states. This as Gibb and Martin (1961) and Dodge and Martin (1970) have observed can be an indication of status inconsistency. Social norms, pressures and legal constraints exists which work to preserve marriages. The very existence of these constraints, coupled with the fact that the majority of individuals from twenty-five to fifty-four years of age are married, would seem to indicate that this status is inconsistent with socially defined "rules" of conduct which regulate the family in Western society. Due to the centrality of the family any act which removes one from it would be seen as being inconsistent with those socially sanctioned demands and expectations placed upon individuals. Divorced individuals are thus seen as existing in highly inconsistent status configuration.

The next group placed in this category are males and females who are married and less than twenty-four years of age. In Table 4 one will find data which details the degree to which males and females occupy various age and marital status configurations. Let us examine these statuses among individuals less than twenty-four years of age.

Single males and females, less than twenty-four years of age, make up 98.7 and 94.0 percent of this cohort group. Among those between twenty and twenty-four 71.4 percent [illegible] the males are single while only 49.2 percent of females are. Thus being married and less than twenty years of age is an infrequently occupied status configuration for both sexes. Among males between twenty and twenty-four this relationship still holds; while among females in this age group married individuals dominate to a slight degree. It is obvious that to be married and less than twenty years of age places one in a sparsely occupied status configuration. This configuration is at odds with our expectations of any young individual. We do not expect, and in fact do not sanction, marriage among teenagers. The level of maturity and interpersonal skills needed to maintain a marriage, especially in its early stages are, in Western society, not generally anticipated to be fully developed among this age group. Thus, in general, the two statuses can be considered to be highly inconsistent. In some ways the same can be said of males and females between twenty and twenty-four. During this stage males are expected to be developing and acquiring the education skills and employment so necessary in life. As such, pressures exist which help to make marriage among males between twenty and twenty-four an infrequently occupied status. Among females in this age group, the same argument may be made. Furthermore, problems may occur among young single and married females, as we shall see, between the conflicting expectations of career and motherhood. It is for these reasons we have classified married males and females whom are less than twenty-four years of age in the high status inconsistency category. The next question to be answered is "why are these status configurations highly stressful?"

The difficulties experienced by teenage marriages has been frequently discussed in academic literature (Waller, W. and Hill, R., 1979; Burchinal, L.G., 1969; and Eshleman, J.R., 1978). Underlying this difficult and stressful state, which has a high probability of ending in divorce, are a number of factors. First, marriage, even among older individuals, imposes frustrations upon established habits. One must radically change how one lives and relates to friends, for example, and adopt to the life style and preference of one's spouse. Among the young, who may not be emotionally prepared, this can be a very trying time. Secondly, young married individuals are often less well educated than those who marry later in life. Since to acquire an university education generally requires four to five years after the completion of high school. With this lower educational level conversely comes lower income possibilities. Financial strain in the family may develop. Finally, as Table 4 indicates, only 1.3% of males and 5.9% of females who are less than twenty years of age are married. Thus the possibilities for peer support and interaction with other married teenagers are substantially reduced. These individuals may find that their ability to continue interacting with their "single" friends is curtailed. This lack of social support and inadequate preparation increase the possibilities that these individuals will encounter states of loneliness, normlessness and role conflict. This last point is highlighted by Allvar Jackson.

> A lack of agreement concerning role expectation which remain unresolved can lead to stress, either because a person is "forced" into actions which he believes are wrong or because his actions bring him into conflict with the expectations of the other. In a marriage if this stress became sufficient, a divorce becomes possible.
>
> (1969:270)

This possibility for the existence of unresolved role conflict is especially high among the young due to the incomplete preparation for the role which they are forced to live. The high incidence of divorce among the young would apparently support this observations and lead one to view this state as being one which is highly stressful.

The next group of status configurations ranked high on the status inconsistency/stress scale are males and females, divorced or widowed, and less than fifty-four years of age. For the majority of these cases being considered, among both males and females, divorce is the primary cause of individuals occupying this status. The infrequently occupied nature of this status alone would lead one to believe that certain social controls exist which inhibit its formation. Furthermore, role conflict, as seen, can exist between the social expectations of being young and single, an adult and married, and being divorced. This inconsistency between divorced and anticipated social roles can lead to a very stressful situation. The impact of divorce on individuals is substantial.

The cut off point for this high stress and highly status inconsistent state will be seen to be fifty-four years of age among females and sixty-four among males. Classifying males and females in this manner relates to the relative contribution of being divorced or widowed in these age groups among males and females. Widowhood is the dominant status among those classified as "widowed, divorced or separated" for males sixty-five and older and for females over fifty-five (_______, 1981, 188-189). Fortunately, as it not the case among divorces, in widowhood Western culture

> has divised several appropriate self conceptions. It is important to recall that the widow usually retains at least some of her old group memberships. She will receive a favorable reflection from her groups if she is courageous, if she attacks practical problems realistically, if she increases her civic or church work, and so forth.
>
> (Cavan, 1969:466)

This is an indication that widowhood, for both males and females since the same processes are involved, is somewhat less status inconsistent than being divorced. Correspondingly it is less stressful due to the reduction in normlessness and the continued maintenance of one's social stature. Males in the sixty-five plus age group who are widowed, divorced or separated, along with females between fifty-five and sixty-four have been placed in the medium status inconsistency/stress category.

Before going on to discuss in full those status configurations which we have classified as being low on our status inconsistency and stress scale, let us first refine our classification of those status configurations which were ranked as being high on this dimension. Due to the rarity of the phenomena and the emotional, financial and social difficulties encountered by individuals who are married and less than twenty years of age, or divorced, widowed or separated and less than twenty-five these status configurations are seen as being the most stressful and status inconsistency of all those considered in this section. Divorced or widowed males and females who are less than sixty-five and fifty-five years of age respectively and married individuals between twenty and twenty-four will be seen as the next highest group on this scale. These individuals occupy states of increased frequency (see Table 4) and are, due to their older age, better prepared to handle the difficulties encountered in these status configurations. The next series of status configurations to be classified will be those arranged in the medium status inconsistency or stress category.

To a large degree the medium category in Table 3 is composed of individuals in age and marital status which lie between those previously defined as either "high" or "low" in terms of status inconsistency. Married males and females over the age of twenty-four and less than sixty-four and fourty-four respectively are two such cases. It is obvious that overall the stresses experienced in these categories are less than those experienced by those who are very young and married and by those who are older. The reasons underlying this observations have been discussed previously.

The same can be said of those who are single. Male, widowed or divorced and over sixty-five have been classified in this "medium" category, unlike their female counterpart, due to the fact that they not only have to cope with the problems of widowhood or divorce but also retirement (Cavan, 1969). Something many of the older women in the sample do not experience. This category, like the two previous examined, has been divided into high and low elements. Single males and females between twenty-five and fourty-four years of age have been classified as being the Medium (high) status configurations in Table 3. This results from the observation that these individuals exist in status configurations which are at odds with the dominant tendency towards marriage and parenthood in these age groups. Peer and family pressure to marry may exist. They may themselves feel, along with the rest of society, that the dominant attitude towards being single is negative. A feeling similar to that expressed by childless parents (Ory, 1978).

The above discussion outlines the rational for classifying sex, age and marital status configurations on a scale which ranks these inconsistency experienced by individual occupying these statuses. Furthermore, it has been shown how this status inconsistency scale can also act as a measure of the degree of socially induced stress experienced by individuals in various status configurations. The next step in this process will be to develop another potential test of the smoking/stress hypothesis. Again ranking of status configurations will be the tool utilized.

4.4.2 The Second Scale: SEX, AGE, MARITAL and PARENTAL STATUS CONFIGURATIONS Among Household Heads

The second test of our main hypothesis consist of the ranking of twenty-seven status configurations occupied by heads of households. The variables which make up these status configurations: are sex, age, marital and parental statuses. As in the previous discussion we shall begin by considering those status configurations which are ranked as being low on a status inconsistency and stress scale.

Head of households exhibiting a high level of status integration and a low level of stress will be seen to be those occupying the following status configurations: (see Table 5) males and females, single and with child who are over fifty-four years of age, widowed or divorced individuals without a child and over sixty-four, married males without children at home and over fifty-five, married males with children at home and over sixty-four, and females with or without children and over fourty-four years of age. Common to these status configuration are two factors. Older age and a corresponding reduction in institutional responsibilities. For the childless, the post-parent period, as has been previously argued, can be a period of reduced stress, enhanced enjoyment and freedom. Even amont those who still maintain their parental status there is a substantial reduction in the presence of socially induced stress and conflict.

Illustrative of this claim are married females whom are older than fourty-four. These women, regardless of whether or not children are present, have been classified as being low in terms of stress and status inconsistency. Having children at home is not a major factor as most will be of school age. When children enter school there exist a reduction in tension between the mother's traditional role and her personal expectations and aspirations. Louis Hoffman observed that

> ... the period when the mother has pre-school age children may be an extremely frustrating time - a time when she must hold back impulses, defer gratification, and above all, remain physically at home. For perhaps twelve years she has had at least one preschool child in the house and been unable to express them because her role demanded certain behaviors, because she felt that to do a good job she should not, and perhaps because she was not able to acknowledge them to herself. Whatever the reasons, the youngest child's entering school can provide a release from many of the

Table 5

Ranking of male and female head of households with respect to the degree of status inconsistency and stress experienced by various marital, parental and age status configurations

HIGH		MEDIUM		LOW	
HIGH	LOW	HIGH	LOW	HIGH	LOW
M,S,WO,15-19	M,S,WO,20-34	M,S,WO,35-54	M,MR,WO,20-54	M,MR,WO,55-64	M,MR,WO,65+
M,S,WC,15-65+	M,MR,WC,35-44	F,S,WO,35-54	M,MR,WC,45-64	M,MR,WC,55-64	M,MR,WC,65+
M,MR,WO,15-19	M,WDS,WO,35-64		F,MR,WO,25-64	F,MR,WO,45-54	M,S,WO,55-65+
M,MR,WC,15-24	F,S,WO,20-34		F,MR,WC,25-44	F,MR,WC,45-54	M,WDS,65+
M,WDS,WO'15-34	F,MR,WO,20-24		F,WDS,WO,55-64		F,S,WO,55-65+
F,S,WO,15-19	F,DWS,WC,35-65+				F,MR,WC,65+
F,S,WC,15-65+					F,WDS,65+
F,MR,WO,15-19					
F,MR,WC,15-24					
F,DWS,WO,15-44					
F,DWS,WC,15-34					

Legend: SEX; M = male, F = female

MARTIAL STATUS; S = single, MR = married, WDS = widowed, divorced or separated

PARENTAL STATUS; WO = without children at home, WC - with children at home

AGE; numeric values refer to age breaks considered

> frustrations of the preceeding years, and outside employment may be one expression of this release.
>
> (1969:244)

This reduction in conflict produces a level of reduced stress similar to that experienced by the married who are childless (Nock, 1979:11).

The remaining status configurations considered to be low in terms of status inconsistency and stress are similar to those found in the same category in Table 3. In refining this "low" category the following observation can be made. Pre-retirement males in the low status inconsistency category were previously seen as experiencing a slightly higher level of stress than those who had entered into their post-retirement period.

Also as was the case in Table 3 the young married women in this low category are seen as experiencing slightly more stress than those who are older. For example, married women between forty-five and sixty-four with children at home, while to a larger degree being free of pre-school age children, must still cope with the parental responsibilities encounter with teenage children. Problems may arise from conflict between the child's lifestyle, which is heavily influenced by its peer group, and the parent's. Tension may arise as the parents attempt to cope with alcohol and drug usage, pre-marital sexual relationships among the young, delinquency, and other associated problems.

Let us now consider those status configurations exhibited in Table 5 which are considered to be average on the status inconsistency and stress scale. Middle age males and females experience a variety situations which can lead to role conflict. This is indictive of states which exhibit less than optional status integration. To be married and to have young children can be stressful. To be married, middle age and to be without children may also place individuals in a moderately stress environment.

Questions may be raised as to why these status configurations were not placed in the high stress category. This issue can be dealt with in two ways. First, the scale is a relative ranking in terms of status inconsistency and stress. Although childless couples do experience stress it is less than that experience by, for example, a young divorcee with children. Secondly, there are positive benefits associated with being a childless parent. Steven Nock observed that these individuals are less likely to be dissatisfied with their marriage, less likely to contemplate divorce and overall appeared to be "exceedingly happy" (1979:22).

In subdividing the medium category into high and low sub-classifications the single males and females (without children) between the ages of thirty-five and fifty-four were classified, as was the case in the previous section (see Table 3), into the higher ranked stress and status inconsistency category. The those individuals ranked high in terms of status inconsistency will now be considered.

The first group of individuals to be found in the high status inconsistency category are single males and females heads of households between fifteen and thirty-four years of age and whom are childless. To be single, the head of a household, and less than twenty-four is a relatively infrequently occupied status. This as Gibb, Dodge and Martin have argued is an indication of high status inconsistency. Among this age group only 12 percent of males and 13 percent of females occupy this status configuration. The large majority of individuals in this cohort group are single and living at home with their parents. The stresses encountered by being in this group are many. Financial problems may be encountered as the young experience the highest rates of unemployment in Canada. Furthermore, if they are employed the salaries they receive may be below average. Peer contact and support are also reduced as most individuals in this cohort group do not occupy this status. Loneliness and the stress encountered with this phenomena may result.

Among those between twenty-five and thirty-four years of age other problems may be encountered. These single individual are in conflict with a social norm which treats marriage and parenthood as highly valued roles (Ory, 1978). Role conflict is thus apparent. Loneliness and distress may further develop from not being able to share common interests, lifestyle and goals with the large majority of one cohort group. Among females these stresses may be further enhanced as these individuals are forced to resolve the previously mentioned conflict between motherhood and career. In view of what has been said above, one would consider that individuals who are single, head of a household with a child present would exist in a state which is even more stressfull and less status consistent.

Although we have not placed single individuals over thirty-five and without children in the high status inconsistency category, due to the fact that at this age much of the conflict between being single versus married should have been resolved and other statuses raised in importance (i.e. career), this is not the case with those with children. To be responsible for a child outside the context of marriage is a relatively rare phenomena in Western society. It is inconsistent with our traditional attitudes towards parenthood.

The potential for conflict and stress to develop are substantial. One must act out the role of father or mother outside the context of marriage and therefore without the support of a spouse. One's interaction with other single or married individuals is further curtailed by this responsibility. These factors may produce conflict and stress resulting from inconsistencies between one's actual role and the one typically expected. For many of these reasons, coupled with the previously discussed financial problems associated with divorce, divorced individuals with children are also placed in the high stress category. As the children become older they may, however, being to provide support and companionship to such individuals.

As in our previous discussion married individuals without children adn less than twenty years of age are also place in this category along with married males between fifteen and thirty-four and married women with children who are less than twenty-four years of age. Young marriages are, as previously argued, highly stressful events. Individuals are often cut off from the majority of their peer group and must cope with, at a young age, potentially frustrating and stressful events. Having a child, with the new obligations of parenthood, simply increases these problems. The age during which this state is considered to be highly stressful has been expanded beyond twenty-four for males, as males tend to marry at a later age then females.

The next step is to classify those status configurations which were ranked high on the status inconsistency stress scale into two further division - high (high) and high (low). Although Table 5 is subsample of those individuals and status configurations dealt with in Table 3 the high (high) and high (low) classification scheme is in many ways similar. As in Table 3 married men, with or without children, are seen as existing in a highly stressful state.

Divorced males between fifteen and thirty-four, if they are without a child at home, and in all age groups if a child is present are also classified in this manner. This holds true for single males with a child present. This classification is consistent with those observations presented in this and the preceeding section. Females in similar status configurations have been also classified as being in the high (high) status inconsistency, stress category. With the exception of single males and females household heads without children at home who are between fifteen and nineteen, the remaining status configurations discussed in this section have been placed in the high (low) category in Table 5. These other status configurations are seen as being less stressful and less status inconsistency than those discussed so far in this section.

This analysis completes our discussion of the data to be used in the second test of the smoking/stress hypothesis. The data used in the final test will now be evaluated.

4.4.3 The Third Scale: SEX, MARITAL, PARENTAL and EMPLOYMENT Status Configurations Among Household Heads

In Table 6 sixty-six marital, parental and employment status configurations will be considered. These status configurations will again be ranked on a six point status inconsistency and stress scale. Married male, without children, whom are employed full time is the first status configuration to be found in the low status inconsistency category. As Steven Nock has observed the children couple can "appear exceedingly happy" (1979:22). Furthermore, being employed full time enables the husband to fulfill his tradition "bread winner" role. This particular status configuration is to a large degree less stressful and inbued with less role conflict than, for example, those males who are married, employed full time and parent. The conflict inherent between career and family are reduced, as children are not present.

Females, married, without children at home, who are homemakers or students are also classified as being low on the status inconsistency and stress scale. Being able to rely on the husband for the families monetary support and being without children enables these women to pursue a variety of interests. Role conflict and stress, due to an absence of responsibilities, is certainly at a minimum for these individuals. One may argue, however, that being a housewife or homemaker can be a most degrading experience due to its subordinate status. Morton Hunt, in 1962 for example, sums up his, somewhat sexist, views on the future open to a

Table 6

Ranking of male and female head of households with respect to the degree of status inconsistency and stress experienced by various, marital parental and occupational status configurations

HIGH		MEDIUM		LOW	
HIGH	LOW	HIGH	LOW	HIGH	LOW
ForM,S,WC,EMFT	M,MR,WC,EMPT	ForM,MR,WC,RET-P	M,MR,WC,EMFT	M,MR,WO,EMFT	ForM,MR,WO,Ret-P
ForM,S,WC,EMPT	F,MR,WC,UNE	F,MR,WC,EMPT	F,MR,WC,STU		F,UR,WO,STU
ForM,S,WC,RET-P	F,Mr,WC,EMFT	ForM,S,WO,RET-P	F,MR,WC,HM		F,UR,WO,HM
ForM,S,WC,STU	ForM,S,WO,EMFT	F,S,WO,HM	F,MR,WO,EMPT		
ForM,S,WC,UNE	ForM,S,WO,EMPT	M,S,WO,STU	ForM,WDS,WO,RET-P		
F,S,WC,HM	F,S,WO,STU	F,MR,WO,EMFT	F,WDS,WO,HM		
ForM,WDS,WC,EMFT	ForM,MR,WO,UNE	M,MR,WO,EMPT			
ForM,WDS,WC,EMPT	M,MR,WO,STU				
ForM,WDS,WC,REP-T	ForM,WDS,WO,EMFT				
ForM,WDS,WC,STU	ForM,WDS,WO,STU				
ForM,WDS,WC,UNE					
F,WDS;WC,HM					
M,MR,WC,UNE					
M,MR,WC,STU					
ForF,S,WO,UNE					
ForM,WDS,WO,UNE					
ForM,WDS,WO,EMPT					

Legend: SEX: M = male, F = female

MARITAL STATUS; S = single, MR = married, WDS = widowed, divorced or separated

PARENTAL STATUS; WO = without children at home, WC = with children at home

EMPLOYMENT STATUS; EMFT = employment fulltime, EMPT = employment part time,
STU = student, HM = homemaker, RET-P = retired or pensioned,
UNE = unemployed

housewife as one spent with

> her children, her housekeeping, and her fellow homemakers; she is very likely to emerge from motherhood in her 40's with little more than the talents and stature she had in childhood, somewhat faded with disuse.
> (cited in Bell, 1975:345)

This view is somewhat at odds with more recent finding. Linda Nilson in one study found that, on a NORC-type prestige score, a housewife has higher prestige than all but the highest skilled blue collar jobs occupied by women and about the same as those clerical jobs occupied by millions of women. She further observes that the role of housewife

> "maybe holding its prestige because it has become a luxury option, especially in working class households where the husband earns too little to support his family comfortably. But even in more affluent households were better educated women may chosé roles for psychological fulfillment, the housewife's role merits comparable prestige, most probably for its artistic and social facets.
> (1978:546)

These findings would apparently support the placement of childless homemakers into the low stress category.

Retired, married, males and females without children at home are the last category to be classified in this low status inconsistency category. The advantages of the post-parental period in an individuals life, in terms of a reduction in role conflict and stress, have been previously discussed. While retirement is often seen as a difficult time of adjustment (Cavan, 1969:463-464), it does have its advantages in terms of the variables being considered in this analysis. The stress encountered through employment and from waiting out the final years of one's employment career are eliminated. This time in an individual's life can and often is a time of reduce conflict and stress, as new possibilities open up. Increased geographic mobility exists, the pleasures of being a grand-parent without responsibilities of parenthood (Nock, 1979:22), and the increased development of activities for the aged all help to reduce this stress. Inconsistencies between statuses are also reduced as individuals occupy a series of inter-related status which involved reduce responsibilities, thus leading to reduced role conflict which is central to status consistency. In terms of refining this low status in consistency category, married males without children have been classified in the low (high) category. This is due to the fact that these males inevitably experience some role conflict with respect to their status as husband and employee.

The next classification to be considered will be those status configurations to be placed in the "medium" status inconsistency/stress category. Recalling the previously discussed finding of Stinett's study with respect to the stresses experienced by retired couples, retired single, widowed or divorced individuals without children were seen to experience higher levels of stress than those who were married. Due to the fact that more social contact and support exist for the widowed than the single (Cavan, 1969:466) these widowed individuals have been classified as being at the lower end of this medium stress category. For the same reason single or widowed/divorced homemakers without children have been split up in this manner. It is probably that the majority of those individuals are older housewife whom have never had careers; retirement is therefore not possible.

Married females with children at home are another group to be found ranked above the low status inconsistency and stress category. In Table 6, with regards to married males with children, students and homemakers have been placed in this "Medium (low)" category. Those employed part-time are classified as being "Medium (high)" in terms of status inconsistency and stress. The unemployed and those that work full time are classified as being "High (low)" in Table 6. The prestige value of being a housewife or housewife/student has been discussed. The other status configurations occupied by married women with children involve some form fo employment. Working women say, as Nielson has observed, may imply inadequate financial support on the part of the husband (1978:546). This employment can, however, be counterproductive in other areas. First, employment by married women may be inconsistent with the traditional role expected of a wife especially if children are present.

> Material employment is not only disapproved in principal by many persons, but for some it is highly threating. For some men, their wive's employment would symbolize their own failure to themselves and the community.
> (Hoffman, 1969:250)

To be a working wife, in traditional Western society involves competition for resources from two sources - the family and the career. Conflict is inevitable. Disruption can develop in the husband and wife relationship. The shift from housewife to full time employee may cause problems in how the division of labour within a household is handled. This has resulted in the observation that dual income families experience more quarreling than the single income family (Blood, 1969:263). It is thus argued that stress resulting from status inconsistency increases as a married women goes from being a homemaker to a full time employee.

The stresses and role conflict experienced by married males with children whom are employed lies somewhere between those whom are employed and without child and those who are unemployed. These individual have therefore been classified as experiencing medium level stress from the status configuration which they occupy. Due to the strong strain towards this status configuration in Western society it has been ranked in the Medium (low) category. As a result of this placement these individuals are seen to experience less stress than males whom are married, without child and employed part-time (Medium (high)) since Western families traditionally rely on the male as "bread winner". Any disruption in this capacity would be seen as one which is inconsistent with this role and therefore increase the level of stress experienced.

The last medium ranked status configurations to be considered are single individuals, without children, who are students. The vast majority of the students in our sample live at home, those who are head of households, unlike their parentally oriented counterparts, must contend with the financial responsibilities of maintaining a household while at the same time paying for their full time education. A difficult proposition at the best of times, however, one which is not as difficult as being married or single unemployed. Differences among this group are apparent for males and females. Unlike the male students, female students must contend with the potential conflict between their future career and parenthood and marriage. Peer group interaction may also be reduced as there are fewer single female students whom are household heads than males. For this reason single male students with children are classified as being Medium (High) while females's are classified as High (low) on the scale presented in Table 6.

Those status configurations considered to be highly status inconsistent and stressful will now be considered. Previously it was observed that to be single, or widowed and divorced and to have children at home was to occupy incompatible statuses. These status configurations also place individuals occupying them in situations which are highly stressful. These observations are considered valid regardless of employment status. If these individuals are employed they must cope with both career and raising of children, income may also be reduced as day care and the sitters may be needed. These status configurations are considered to be among to most stressful and status inconsistent of those evaluated in this analysis.

Another status which aids one in evaluating whether or not a particular status configuration is highly stressfull or inconsistent is that of unemployment. The stresses encountered by unemployed individuals has been previously considered. While being considered a difficult time in any individual's life the stress and conflict experienced by unemployed individuals may be reduced, however, by one factors having another individuals in the household whom is employed. While a family's income will be reduced by the loss of one individuals employment, it's effets are reduced by the continued presence of another. Married, males and female, without children at home and married women with children are therefore classified as experiencing slightly less stress and status upheaval than other unemployed status configurations. It is also in the childless family, where pursuit of a career is an option open to both individuals, where this is most likely to occur.

In lieu of the above discussion it it apparent that the potential exists for a fair degree of role conflict among married males with children whom are either employed part-time or students. These employment statuses are in conflict with the simultaneously occupied statuses of father and husband. Role conflict may develop under such conditions. It is highest among those who are students, but exist to a lesser degree among those employed part-time. These observations are simply an extension of the preceeding observations. The first group of status configurations ranked in Table 6 as being high on the status inconsistency/stress scale are single, divorced or separated head of households, without children, in most employment categories. Among the single, divorced elements of this group the degree of status inconsistency and stress experienced is apparent high as has been previously discussed. Among the widowed elements similar problems are encountered. In one study, Nick Stinett observed that

> older persons (45-65) who are living with their spouse were usually found to be better adjusted and to have higher morale than older persons who were widowed, divorced and single ..... persons over sixty-five and living with their spouse experienced less loneliness and engage in less day dreaming than did their unmarried counterparts.
>
> (cited in Bell, 1975:306)

The stress encountered among these groups results from loneliness, conflict between one life style, chosen or otherwise, and socially sanction expectations and norms, and the financial strain often associated with belonging to some of these status configurations (i.e. divorced individuals tend to have lower income levels). Inconsistencies between the various status occupied by individuals within this group are also high as has been illustrated in previous discussions. Of these group, head of households who are single, widowed or divorced and without children at home, the unemployed and those employed part-time are seen to be those experiencing the highest levels of stress. This is largely due to financial concerns.

Having created the three scales to be used in testing our central hypothesis attention can now be turned to the actual results of this analysis. However, before this last step is pursued an examination of possible interviewing variables will be pursued. The effect of these interviewing variables on the nature of statistical test to be used will also discussed.

CHAPTER 5

DATA ANALYSIS

5.1 Introduction

In the preceeding chapter three hypothesis were developed. Their purpose was to test R. Stephney's argument that the maintenance of smoking behavior is largely the result of individuals using cigarettes, for example, as a "psychological tool" to combat stress. These three hypothesis are:

> Hypothesis 1: The incidence of smoking will vary directly with the degree of status inconsistency experienced by individuals in various sex, age and marital configurations.
>
> Hypothesis 2: The incidence of smoking will vary directly with the degree of status inconsistency experienced by household heads in various sex, age, marital and parental status configurations.
>
> Hypothesis 3: The incidence of smoking will vary directly with the degree of status inconsistency experienced by household heads in various sex, marital, parental and employment status configurations.

The next task before us is to test the validity of these hypothesis and therefore to evaluate the validity of Stephney's argument. However, before this task is undertaken a short note on the statistical measures used is in order.

5.2 Gamma and Partial Gamma and Lambda

Two measures of association are to be used in the following analysis. They are the symmetrical measures of association between two ordinal variables - Gamma and Partial Gamma. Gamma represented mathematically is as follows:

$$\text{Gamma} = \frac{N_s - N_d}{N_s + N_d}$$

where N_s = the number of disconcordant pairs in a "crosstabulation", and
N_d = the number of concordant pairs in a "crosstabulation".

Here disconcordant pairs are those which are ranked in the opposite order on both variables. Conversely concordant pairs are those which are ranked in the same order. While this statistical measure can be interpreted in a number of ways, it is basically the probability of guessing the order of a pair of cases on one variable once the ordering on the other variable is known. Gamma can range from -1 to +1 depending on whether the concordant or disconcordant pairs dominate. A gamma of .8, for example, indicates that two variables are strongly associated (positively) to each other.

The above measure of association is a zero (N-2)-order gamma, where N refers to the number of variables being considered in the relationship. It only tells one about the association between two variables. If one believes that the relationship under question may be altered by another variable, or set of variables, another statistical measure is needed. One such appropriate statistic is that of partial gamma.

$$\text{Partial gamma} = \frac{\sum_i N_{si} - \sum_i N_{di}}{\sum_i N_{si} + \sum_i N_{di}}$$

where $\sum_i N_{si}$ = the sum of the disconcordant pairs over all the sub-tables i, and

$\sum_i N_{di}$ = the sum of the concordant pairs over all the sub-tables i.

A single statistical measure is thus available when one controls for the effect of one or more variable. For example, we may wish to know if sex and age, when controlled for, affect the relationship between status inconsistency and the incidence of smoking. If the zero-order gamma is .4 and the second (4-2)-order gamma is .1 (i.e. controlling for sex and age) we then know that the relationship between status inconsistency and the incidence of smoking in a population is largely due to demographic (i.e. sex and age) differences. The variables sex and age, rather than status inconsistency, have a large role to play in explaining why people smoke.

Gamma and partial gamma are both measures of association used with ordinal level data. Occasional, however, in the following analysis reference will be made to the association between two variables which may not be ordinal in nature - i.e. occupations and whether someone smokes or not. In such situations an asymmetrical version of lambda (λa) will be used. Lambda is simply a measure of the reduction in error which occurs when one takes into account the effects of a potential independent variable. For example, if when examining marital status and smoking we found a lambda of 0.40 we would be able to conclude that 40% of our errors in guessing whether or not someone smoked can be eliminated if we take marital status into account. This indicates, if it was indeed true, a fairly good degree of association between the two variables.

Having dealt with the statistical measures to be used, we can now proceed with the data analysis. This analysis will be completed in a series of steps. First we shall examine the relationship between smoking and various variables (i.e. sex, age, marital status,...), following this we shall simply examine the relationship between status inconsistency and smoking for Hypothesis 1,2, and 3. The last step in the analysis will be to examine the relationship between smoking and status inconsistency when various variables are controlled for.

5.3 Socio-Demographic Aspects of Smoking *

Before we proceed with the analysis of the relationship between status inconsistency and smoking, we shall first consider the relationship between various socio-demographic variables and smoking. In Table 7 one will find the appropriate measure of association between the variables sex, age, marital status, education, employment status, family income and occupation, and smoking. Due to the fact that two populations

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* Due to the large sample sizes involved all gammas presented in this chapter are significant ($p < .0001$).

are to be considered in the upcoming analysis - the total sample in Hypothesis 1 and only heads of households in Hypothesis 2 and 3, both are presented in Table 7.

In examining Table 7 one can observe that family income, marital status, employment status and occupation are all very poor predictors of an individuals smoking behaviour. A very weak negative association is found, for example, between income and smoking in both populations. Furthermore, only 1% of our error in guessing whether or not someone smoked or not can be eliminated if we take occupation into account. An individuals sex, age and level of educational attainment exhibit, however, a slightly stronger association with smoking than the previous set of variables.

The data in Table 7 indicates that males are slightly more likely to smoke than females, the more educated an individual is the less likely he/she is to smoke, and smoking and age are negatively associated (i.e. older individuals tend to smoke less). These conclusions hold across the two populations being considered.

The only variable which changes its measure of association across the two samples is age. As one considers an older population-heads of households, the relationship between smoking and age increases. A gamma of -.135 was observed for the total population. This increased to -.245 for heads of households. Having observed the relationship between these socio-demographic variables and smoking we can now turn our attention to the three hypothesis to be tested.

Table 7

Measure of association between socio-demographic variables and smoking for the total population and heads of households.

	TOTAL SAMPLE	HEADS OF HOUSEHOLDS
SEX		
GAMMA	.147 (22,005)	.157 (17,099)
AGE		
GAMMA	-.135 (22,007)	-.245 (17099)
EDUCATION		
GAMMA	-.156 (21,841)	-.145 (17098)
FAMILY INCOME		
GAMMA	-.055 (21,637)	-.040 (17099)
MARITAL STATUS		
LAMBDA	.000 (22,005)	.000 (17098)
EMPLOYMENT STATUS		
LAMBDA	.023 (22,006)	.018 (17099)
OCCUPATION		
LAMBDA	.011 (11,326)	.010 (9366)

N.B. Due to the large sample sizes all measures are significant ($p < .0001$).

5.4 Smoking and Status Inconsistency - The Three Hypothesis

We have argued, in setting up Hypothesis 1, 2, and 3, that as status inconsistency increases, and thereby the degree of socially induced stress experienced, so should the incidence of smoking in the status configurations considered. In Table 8 one will find, for each Hypothesis, the incidence of smoking for each level of status inconsistency experienced and the measure of association - gamma. As one can see the incidence of smoking increases steady from the lowest status inconsistency level to the highest in all three hypothesis. With repect to Hypothesis 1 the incidence of smoking ranges from 28.9% to 59.8% as one increases the degree of status inconsistency experienced by individuals occupying various status configurations.

Gammas of .246, .221 and .191 were found for Hypothesis 1 thru 3 respectively. Although these are moderately weak zero-order gammas, they do indicate that status inconsistency, and thus stress, is positively associated with smoking. Futhermore, with repect to the socio-demographic variables previously considered, only the age of the respondent in Hypothesis 2 and 3 (heads of households) has a higher gamma (-.245) than the respective zero-order gamma.

The above remarks indicate that, at best, status inconsistency is a relatively weak indicator of an individual's propensity to smoke. Age, at least for heads of households, is a better predictor. The ability for age to vary in its association with smoking relates to the characteristics of the subpopulation excluded as one goes from the total

Table 8

The incidence of smoking and the relationship between status inconsistency and smoking for Hypothesis 1, 2 and 3

STATUS INCONSISTENCY SCALE	HYPOTHESIS 1 (22002)	HYPOTHESIS 2 (17098)	HYPOTHESIS 3 (17097)
1	28.9% (1471)	21.1% (170)	28.4% (799)
2	35.4% (1307)	33.7% (1013)	40.2% (647)
3	41.8% (4072)	35.5% (1899)	38.5% (2496)
4	51.4% (844)	35.6% (115)	37.1% (695)
5	54.0% (917)	43.7% (1130)	46.9% (1428)
HIGH 6	59.8% (87)	49.1% (2473)	57.5% (734)
GAMMA	.246	.221	.191
SIGNIFICANCE	.0001	.0001	.0001

sample to heads of households. The majority of individuals interviewed who were not heads of households were those under twenty-five years of age. Among this age group there is an increase in the incidence of smoking as one shifts from the total population to household heads. The incidence of smoking is 54% among heads of households who are less than twenty-five. Among the total population this drops to 41%. Due to these shifts we have produced a decreasing monotonic association between status inconsistency and smoking among heads of households.

In selecting the subpopulation used in Hypothesis 2 and 3 we have strengthened the underlying negative association between smoking and age. This was achieved by removing, from the population being considered, those young individuals who exhibit a low level of smoking and keeping the young heads of households who tend to smoke more. We had previously argued that these young heads of households did run the risk of occupying relatively stressful status configurations. As such, the strengthened relationship between age and smoking is to be expected. It is in some ways a finding which indicates the sort of status configurations occupied by certain individuals - the young in particular.

In summary it can be concluded that status inconsistency exhibits the strongest association with smoking of all the variables examined. It should be noted, however, that under certain conditions the data can be manipulated so as to strengthen or weaken the underlying relationship between the socio-demographic variables and smoking. Having considered the relationship between status inconsistency and smoking we shall now examine how the status inconsistency/smoking relationship is affected when one controls for the effect of various socio-demographic variables.

5.5 Status Inconsistency and Smoking When Controlling for the Effects of Socio-Demographic Variables.

Having established that a relationship between status inconsistency (SI) and smoking exist, one is still left with the task of determining whether or not this relationship is genuinely due to these two variables or the result of some other variable. To determine if this is the case a number of variables, which have the potential of affecting both the degree of stress experienced by an individual and their smoking habit, have been included in the analysis. The variables to be considered are: age, education level, employment status, family income and occupation. The variability in the incidence of smoking which results when these variables are controlled for has been dealt with by various authors (Bosse and Rose, 1976; and Hanley and Robinson, 1976; ________________, 1977:14-40). Furthermore, with respect to the variable stress it is obvious that all of these variables have the potential to alter the degree to which it is experienced.

The effects of the control variables on the relationship between SI and smoking can be seen in Table 9. Here one will find the first order partial gammas for the socio-demographic variables previously considered which were not included in the development of our three tests. The conclusions to derive from Table 9 are as follows:

1. AGE: Age was not one of the variables used in setting up the SI index for Hypothesis 3. As such the effects of age on the SI/smoking relationship will be consider for only Hypothesis 3. The effect of controlling for age on this hypothesis was to substantially

reduce the SI/smoking relationship (first-order partial gamma (PG)=.091; zero-order gamma (G)=.191). This particular finding causes one to question the ability of SI to act as a predictor among the subpopulation made up of heads of house-holds.

The ability of the variable age to weaken the SI/smoking relationship results from the removal from the sample of individuals who were young and not heads of households. We, in effect, removed those young individuals who exhibited a low incidence of smoking and kept the high, thus increasing the negative association between age and smoking observed in Table 7. The ability of age to weaken the SI/smoking relationship lies, however, not with its inherent ability to explain why people smoke, but rather with our incomplete specification of the status configurations used in Hypothesis 3. We have ignored the highly stressful effects of marriage upon the young. The zero-order gamma among the married in Hypothesis 1 was .292, this was reduced to .140 in Hypothesis 3. Among those individuals who for example, were single, the observed zero-order gamma for Hypothesis 1 and 3 were .212 and .236. In not intentionally controlling for age in Hypothesis 3 the potentially stress-full effects of marriage upon the young, a group which exhibits a high incidence of smoking (50%), is hidden as they are classified with all other married individuals. The above comments indicate that one of the difficulties inherent in using status inconsistency as a measure of stress results not only from the problems involved in defining what statuses are most relevant, but that the importance of these

Table 9

First-order partial gammas between status inconsistency and smoking when sex, age, marital status, education, employment status, family income, and occupation are controlled for.

VARIABLES	HYPOTHESIS 1	HYPOTHESIS 2	HYPOTHESIS 3
1. AGE	----	----	.091
2. EDUCATION	.292	.260	.228
3. EMPLOYMENT STATUS	.163	.184	----
4. FAMILY INCOME	.224	.192	.173
5. OCCUPATION	.137	.145	.069
ZERO-ORDER GAMMA	.246	.221	.191

N.B. all zero and first order partial gammas are significant at $p < .0001$.

statuses may change from one sub-population to another.

2. EDUCATION: Controlling for the respondent's educational background helps improve the predictive ability of SI for all three Hypothesis (Hyp 1: PG=.292, G=.246; Hyp 2: PG=.260, G=.221; and Hyp 3: PG=.228, G=.191). This improvement results from the decreasing monotonic association between education and smoking indicated in Table 7. The incidence of smoking among those with high school education or less is 42%, compared to 30% for those with at least some university level education. It is probably that the more educated are more aware and concerned about the effects of smoking on their health. Education thus acts as a variable which masks the SI/smoking relationship.

3. EMPLOYMENT STATUS: As is evident from Table 9 a respondent's employment status, when controlled for, can reduce the SI/smoking relationsip (Hyp 1: PG=.163, G=.246; and Hyp 2: PG=.184, G=.221; this particular phenomenon results from the ability of full time employment and unemployment to substantially reduce the SI/smoking relationship. Among those who work full-time a zero-order gamma between SI and smoking of .096 ($p < .0001$) was observed in Hypothesis 1. Among the unemployed this was further reduced to .015 ($p < .0001$). Unemployment is, regardless of any other statuses which one may occupy, a highly stressful situation in which to exist. Thus one should not be suprised if it weakens the original SI/smoking relationship. Full time employment, and to a certain degree

part time employment (G=.168; p < .0001), can also be seen in this light. Employment may bring to the individual certain life stress which can override the stressful effect of the other statuses which an individual may occupy. Job pressures, concern over raises, advancement and one's future employment possibilities may all interact to create, for the employed, a potential stressful situation. Alternatively one could argue that employment, and the resultant social interaction which goes with it, create an environment where smoking - a very social activity, becomes a norm. However, given that the incidence of smoking is for the unemployed 58%, compared with 45% for those employed full time, one is led to believe that to a certain degree stress is playing a role. Since most of the unemployed were also at one time employed.

4. **FAMILY INCOME**: Although a respondent's family income has very little explanatory power when attempting to explain the SI/smoking relationship (Hyp 1: PG=.224, G=.246; Hyp 2: PG=.192, G=.221; and Hyp 3: PG=.173, G=.191), this finding clouds a number of interesting relationships.

As is the case with education the incidence of smoking declines as family income increases. The shift, however, is not as dramatic. Among those individuals whose total family income is less than $10,000 per year 41.6% smoke. This is to be compared to 37% among individuals in the $35,000 plus a family income bracket. A number of possible interpretations can be brought forward at this point. It may be that family income simply reflect individual educational attainment. If this is so the previous observations apply. On the other hand, one may argue that with higher income comes an increase in the number of stress reducing alternative available to such individuals.

Pursuing the analysis somewhat further one can readily observe that it is among the poorest elements of our sample where the strongest associations between status inconsistency and stress occur. Among individuals in families with incomes less than \$10,000 per year a zero-order gamma of .380 ($p < .0001$) occurs. This declines to .301 ($p < .0001$) among those with a family income between ten to fifteen housand dollars per year. Gamma further drops to .162 ($p < .0001$) for individuals in the highest income bracket. A moderately strong relationship between SI and smoking thus exist among individuals in the two lowest income levels. This decline in the association between SI and smoking as family income increase leads one to postulate that increased family wealth offers to individuals some protection from the effects of extreme stress. This possibly results from an increased ability to pursue potential stress reducing options - i.e. membership in social clubs, vacations or other such activities.

5. OCCUPATION: The last variable controlled for was the respondent's occupation. Examining Table 9 one can conclude that, with the exception of age, occupation offers the most explanatory value with respect to the SI/smoking relationship. (Hyp 1: PG=.137, G=.246; Hyp 2: PG=.145, G=.221; and Hyp 3: PG=.069, G=.191).

Across all three hypothesis the level of association observed between SI and smoking decreases when one controls for occupation. The largest shift is found in Hypothesis 3 where a gamma of .191 was originally observed and a first-order partial gamma of .069 is observed once one takes into account the effects of occupation on the SI/smoking relationship.

With respect to the variables considered the two most important, in terms of their explanatory value, are those centered around an individual's economic activities. Employment Status and Occupation both, when controlled for, reduce the SI/smoking relationship. The importance of employment status has also been understated. If one was to remove those who are retired, students or housewives, i.e. individuals not directly involved in economic activity, from the employment status classification the first-order gamma would be reduced substantially as the zero-order gamma for those who are employed full time, part time and unemployed are .096, .168, and .015 respectively. The zero order gammas are, on the other hand, for the retired student and housewives .317, .209, and .340.

The ability of occupation and employment status to reduce the observed SI/smoking relationship can be explained in a number of ways. One can argue, following Lazarsfeld (1973), that the work environment offers to individuals, depending upon their occupation, environments which vary in terms of how conducive they are to smoking. While there are differences in the incidence of smoking and occupation (________, 1979:28), they are not substantial and would only explain, as previously seen, only a small portion of the observed smoking behaviour. On the other hand, one could argue, due to the educational qualifications required for various types of employment, that the observed phenomena is simply a reflection of the individuals level of educational attainment. This is certainly true of those classified as professionals. The incidence of smoking in this group is 28% compared with 40% in the population overall. These explanations are, however; inadequate when one attempts to explain why the incidence of smoking is so high among the unemployed (58%). Socially induced stress is potentially the best way to explain this phenomenon.

While the variables discussed above have the ability, in certain instances to explain away the status inconsistency/smoking relationship, on their own they offer little in terms of explanatory power. Status inconsistency is, under certain circumstances a better predictor of smoking than most of the variables considered. This is especially true if specific sub-populations are examined. For example, consider the following sub-populations where status inconsistency is useful as a predictor of smoking (all are significant at $p < .0001$): individuals less than twenty years of age - G=.511, individuals with income less than $10,000 - G=.380, housewives - G=.340, divorced or separated individuals - G=.528, university educated pensioners - G=.445, highschool students, G=.563, housewives with high school education, G=.378, and university educated individuals with a yearly income less than $10,000 - G=.396. These findings lead one to conclude that status inconsistency and thus stress, while having some explanatory power, are with repect to the total population, relatively weak predictors of why people smoke.

5.6 Conclusion

This information confirms our previous impressions that, given our present measures, status inconsistency and thereby stress have some ability to act as an explanation of the incidence of smoking within a population. The relationship, however, while significant in a stastistical sense is, overall, not that strong. Furthermore, it can be substantially weakened by the inclusion of certain control variables. Status inconsistency while having some explanatory power is a relatively poor predictor of individual smoking behavior.

One could argue at this point that this may be due to the imperfect measures of stress and status inconsistency being used. However, due to occurrence of relatively strong measures of association between status inconsistency and smoking among specific sub-populations one can hypothesis that the phenomena of status inconsistency is a very difficult one to adequately develop a measure which relates to a population as a whole.

Possibly stronger measures of association could be develop if we examined very limited group of individuals and classified them according to the degree of status inconsistency experience as a result of the interaction of all relevant variables. This would be the ideal, however, an endless task subject to one's ability to obtain all the relevant information on the individuals being considered. Furthermore, methodological problems arise in justifying which subgroup are to be examined. All such subgroups would inevitably need to be tested. Another problem which would arise would be the endless task of classifying the status configurations resulting from the inclusion of all relevant variables. The number of status configurations to be classified would be in the thousands if, of course, one could determine what are the most relevant variables.

CHAPTER 6

6. An Alternative View of Smoking

6.1 Review

In the previous discussion the major argument proposed to explain why individuals use tobacco products were reviewed. It was argued that currently there are two "schools of thought" vying for dominance in this field. There are those authors who argue that individuals use tobacco products simply because they are addicted. While on the other hand certain authors have proposed that the chief underlying reasons for the observed tobacco consumption behaviour relates to individuals use of nicotine, a constituent part of all tobacco products, as a "Psychological Tool". Nicotine consumption is seen as a form of self administered and regulated drug taking, used to reduce the negative effects of stress. The overall aim of this work was to evaluate and test the validity of the latter of these two arguments.

Observing that a major source of stress is social in origin, the following proposition was formulated to test the "Psychological Tool" argument: the incidence of smoking in a population varies directly with the extent of socially induced stress in that population. Difficulties are encountered when one attempts to measure stress directly at the individual level using secondary data. As such we proposed the use of an auxiliary theory linking stress to the concept of status inconsistency. Status inconsistency is a concept which not only can act as an indicator of stress, but one for which individuals can be ranked on using secondary data.

Three hypothesis were developed to test our main proposition. The results of which can be summarized as follows:

- the ability of status inconsistency and thus socially induced stress to act as a predictor of an individuals smoking behaviour is relatively weak;
- certain variables centered around an individual's economic activity (i.e. employment status and occupation) can explain much of the status inconsistency/smoking relationship;
- status inconsistency does have some explanatory power with respect to its ability to explain individual smoking behavior. Smoking, at least to some degree seems to be related to status inconsistency and thus stress; and
- while the above observation would indicate that socially induced stress is a poor predictor of an individuals smoking behaviour, its predictive ability is substantially improved if we look only at certain specific subgroups.

These observations lead one to conclude that, although there exists methodological problems with using status inconsistency as discussed in Chapters 3 and 5, status inconsistency, and thus stress, is a relatively poor predictor of why people smoke.

The view that people smoke because they are addicted was the other competing argument examined in Chapter 2. As it is presently formulated, a simple case of pharmacological addiction, it too will suffer from a relatively poor explanatory ability. This results from the variability in the incidence of smoking in various sub-populations and the fact that stress can apparently act as a reasonable predictor of smoking in select sub-populations. An alternative explanation is now needed.

6.2 An Alternative View of Smoking - The Sociological Viewpoint

With the exception of this work, little testing of the "Psychological Tool" argument exists. Much of the support for it comes from two sources: first, anecdotal comments from smokers which suggest that tobacco smoking has a "calming effect" in stressful situations and that many individuals desired to smoke more when exposed to stress, and secondly various physiological measures. The first source of information, individual's beliefs, is somewhat suspect as a source of support. The second requires mental gymnastics. Nicotine to a large degree acts as a stimulant. How, one may ask, does this help one to handle stress, since the major drugs commonly used to handle stress are depressants. Granted that alcohol may be biphasic in its effects - a stimulant in small doses, a depressant in larger doses, but who handles stress with one "light" beer. The solution to this paradox (Nesbitt's Paradox) is to argue that increased physiological measures result in improved performance. If people are like rats one can conclude that nicotine can reduce stress, since

> nicotine seems to protect rats from the behaviourally disruptive effects of stress

> while apparently enhancing the endocrinological response.
> (Balfour, 1982: 247)

This indeed is a peculiar argument, for one is forced to continually rationalize why a stimulant can reduce the effects of stress.

The problems with the "Psychological Tool" argument and also with the Addiction view of smoking is that they ignore the social context in which drug taking occurs. Becker (1963), Goode (1972), Orcutt (1972) and others have observed that the "effects" of drugs, such as marijuana and alcohol, cannot be fully understood if one does not take into account the social context in which they are taken. Without this perspective one runs the risk of committing, what Goode calls the "chemicalistic fallacy"

> the view that drug A causes behaviour X, that what we see as a behaviour and effect associated with a given drug are solely (or even mainly) a function of the biochemical properties of that drug, of the drug plus the human animal, or even the drug plus a human organism with a certain character structure.
> (Goode, 1972: 3-4)

To illustrate this point one may ask how a practice, tobacco smoking, which began as an "ancient fraternal token" by native North and South Americans became a "democratic ritual" in much of the world? Furthermore, one may ask why was tobacco, for three centuries (sixteenth through nineteenth), used for medicinal purposes in Europe, as a psycotropic substance by seventeenth century Russians*, and why today certain individuals argue for the relationship between stress and smoking? Social factors, norms and expectations obviously play a role in explaining the diverse uses to which tobacco has been put. One may conclude, as Goode has, that "society's attitude towards a given drug and its use do not bear any necessary relationship to the drug's actual properties" (1972: 130).

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* tobacco smoke was inhaled deeply, the breath held and the smoke exhaled very slowly. This description fits that of the modern marijuana smoker.

A more recent example of the changes in the normative linkage between a drug and its effects can be seen with marijuana. Discussions of the gradual development of "a more explicit characterization of marijuana as a "mind drug" with its "internally oriented effects" as it was passed from the early jazz musicians, to the "beat" circles in the late 1940's and early 1950's, to the middle classes in subsequent years can be found in Orcutt (1972) and Becker (1963). It is sufficient to say, at this point, that like marijuana and alcohol, tobacco consumption cannot be entirely understood without considering the social context in which it is used.

The comments by many modern tobacco users, relating tobacco consumption to stress can possibly be best understood in terms of their normative expectations. They have been taught, through the movies, television and parental training, that cigarettes are often consumed in stressful situations. The images of the young husband waiting for the birth of a child, the criminal under interrogation, or the heated argument will elicit in most individuals, at least this author, corresponding images of tobacco smoking. Whether or not nicotine can help one handle stress is irrelevant, what is important is that people believe it can.

Nesbitt's paradox, how a substance which acts as a stimulant can be used to reduce the effects of stress, can now be resolved. It is potentially the normative expectations centered around smoking, not the pharmacological properties of the drug, which cause individuals to associate smoking with the reduction of stress. The puzzle behind the observed smoking behaviour is not Nesbitt's paradox, but rather how did this particualr set of normative expectations about tobacco usage develop in the first place?

6.3 Conclusion

The ability of stress to act as a predictor of individuals smoking behavior has been found overall to be, on its own, relatively weak. Yet, there are indications that under certain conditions and for certain subgroups within the population it may work relatively well. As such, it cannot be entirely excluded from the tobacco usage issue. It is the opinion of this author, however, that perceived ability of tobacco to reduce the negative effects of stress are not the result of the pharmacological properties of nicotine, but potentially the result of a developed set of normative social expectations. To understand the widespread use of tobacco products, the Addiction model may be more useful. To understand the variability of the habit from one group to another a potentially more fruitful approach may be to analyze how normative expectations influence peoples smoking behaviour.

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