

CONSUMER OPINIONS REGARDING A FLAMMABILITY
STANDARD FOR UPHOLSTERED FURNITURE

by

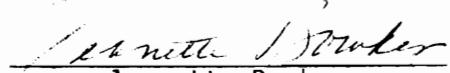
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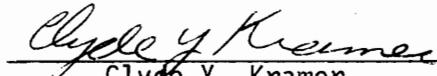
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Chapter I

INTRODUCTION

In recent decades the government, its constituents, and the business sector of the United States have become increasingly concerned with consumerism. The main theme of this concern has been protection of the consumer from the business sector through government legislation. Although there have been various forms of consumer protection, one of importance to this study has been the outlawing of hazardous consumer products, particularly highly flammable textiles (Lyons and Robbins, 1976).

Several flammability standards for textile products have been promulgated by the National Bureau of Standards and enforced by the Consumer Product Safety Commission. Other standards have been proposed. Those standards which are now in effect deal for the most part with the flammability of children's sleepwear, mattresses and mattress pads, and carpets and rugs. Currently, there is no flammability standard for upholstered furniture; however, the National Bureau of Standards has drafted a proposed standard which is now under consideration by the Consumer Product Safety Commission (Lyons and Robbins, 1976).

All of the flammability standards are an effort to protect the consuming public from hazardous items on the market, namely textiles. Yet, according to Kraswell (1972), president of Fabric Research Laboratories, most textiles in use today are flammable and, practically

speaking, it cannot be assumed that all are hazardous and dangerous. "We all know that most of the apparel and home furnishings that we buy are reasonably safe, but this is because they are rarely exposed to fire" (Kraswell, 1972, p. 34). However, fire is something that man must use and yet it can cause destruction, economic loss, suffering, injury, and even death (Bennett, 1973). Consequently, there are hazards involved, but the question is whether or not the hazard is serious enough to be worthy of legislation.

Various opinions have been expressed concerning whether or not an upholstery flammability standard is necessary. The American Medical Association has supported the proposed standard for upholstered furniture. They felt it would be good preventive medicine (TIPS, 1976). Supporting this theory was the Bureau of Epidemiology, who believed injuries and their severity have been reduced by previous flammability standards (Freestone, 1975).

Other researchers concerned with the flammability problem seemed to have a more negative point of view. Kraswell (1972) maintained:

The contention is made that many of the proposed new standards are ridiculous, impractical, unnecessary and expensive; that, considering our population, only a relatively few textile fire injuries and fatalities occur each year and therefore, there is little need for improvement in flame-resisting characteristics of clothing and home furnishings, assuming that the most dangerous articles, like those notorious brushed rayon sweaters, are kept off the market. (p. 34)

In a similar tone Houser (1975) suggested that the root of the flammability problem was the people who do not have knowledge and experience with fire and burning. He believed education in preventing fires would reduce hazards more than a flammability standard. Kushner (1975)

felt there should be both types of upholstered furniture on the market, those which meet a flammability standard and those which do not. Because of the possible wide variation in price between the two types, this concept would allow the consumer the ultimate decision between the protection which would be nice to have and what is economically feasible. Sutter (1975) pointed out that improvements in flame resistance for upholstery fabric cannot be carried out easily or rapidly unless aesthetics become a secondary consideration, since the most aesthetically pleasing fabrics are also the most flammable. He stressed the need to maintain the decorativeness of fabrics regardless of the specifications for functionality.

On the technological side of the flammability issue, the textile industry does not generally support new standards. Fortress (1979, p. 48) commented that, "The textile industry's challenge to create new fibers and finishing technology to meet standards that aren't even clear yet, comes not from consumers, but from legislators and government agencies." To meet these standards, consumer demands for improved performance may suffer. Also, many useful fabrics may be driven off the market, limiting consumer choice (Drake, 1976). In essence, legislation should not move ahead of technology. To summarize, Kraswell (1972, p. 34) explained, "Our long term goal should be the development of essentially nonflammable apparel and home furnishings, but which have all the other attributes that we as consumers want: proper performance, durability and low cost."

Many of the opinions expressed thus far have been negative in nature; these are the opinions of researchers, manufacturers, and various other experts in the field of flammability. Although expert opinions are valuable and necessary, it is the consumer who is the focal point of the issue, since flammability standards were originally created and developed with their protection being of paramount importance. For this reason it seems pertinent to explore and determine the opinions of the consumer toward a flammability standard for upholstered furniture.

Chapter II

STATEMENT OF THE RESEARCH PROBLEM

Purpose

The purpose of this study was to investigate the opinions of a selected group of consumers towards a possible flammability standard for upholstered furniture and to determine whether any relationships existed between these opinions and selected demographic and experiential variables.

Objectives

1. To determine the opinions of a selected group of consumers toward a flammability standard for upholstered furniture.
2. To determine if any relationships exist between the opinions of a selected group of consumers towards a flammability standard for upholstered furniture and the following:
 - (a) age
 - (b) education
 - (c) social class
 - (d) importance placed on flame resistance
 - (e) knowledge of flammability standards
 - (f) smoking habits
 - (g) experiences with fire

Limitations

The questionnaire used in this study was developed from two questionnaires previously used in flammability research, which were pre-tested for clarity of meaning. However, the instrument used in this study was not pretested since the majority of questions had already been tested for clarity by Zentner et al. (1977) and Patterson (1977). This instrument was also not tested for reliability.

The respondents participating in the study were geographically limited to Salem, Virginia. The subjects of this particular geographic area may not be representative of people in other regions. Therefore, the results of this study cannot be generalized to the entire population of consumers. Only women consumers were surveyed; had men been included in the study, results may have been different.

Definitions

1. Flammability standard refers to "any standard (including conditions and manner of testing) or other regulation, including any labeling regulation, or any revision, or amendment thereto, relating to the flammability of a fabric, related material or product" (Federal Register, 1974, p. 40759).
2. Fabric refers to "any material (except fiber, filament, or yarn for other than retail sale) woven, knitted, felted, or otherwise produced from or in combination with any natural or synthetic fiber, film or substitute therefore which is intended for use or which

may reasonably be expected to be used, in any product" (Federal Register, 1974, p. 40759).

3. Upholstery refers to "fabrics and fittings used in upholstering" (Funk and Wagnalls Standard Desk Dictionary, 1974, p. 748).

Chapter III

REVIEW OF RELATED LITERATURE

Comparatively little has been done over the centuries to prevent injury from the burning of clothing or other textile surroundings. Only in the past 25 years has the Federal Government of the United States begun to take action against the hazards of flammable textiles. In 1953, the Flammable Fabrics Act was passed which became effective in 1954. This legislation outlawed the manufacture or sale of wearing apparel which was so highly flammable as to be dangerous. Amendments to the act came about in 1967, creating a mechanism for the development of more effective flammability standards as the needs were identified. Items subject to the amendment included interior furnishings as well as apparel fabrics (Bennett, 1973).

Congress went a step further in hazard prevention legislation by passing the Consumer Product Safety Act in 1972. The passage of this act created the Consumer Product Safety Commission, consisting of five members, which has a broad range of powers. The Commission can establish mandatory safety standards for, or completely ban from the market, practically any consumer product manufactured, distributed, marketed in or imported into the United States. Two basic functions of the Commission are to gather and disseminate information concerning injuries, deaths, or other hazards related to a specific product and to create and to enforce safety standards. The Commission was also given administrative

responsibility for other consumer safety acts, including the Flammable Fabrics Act which was formerly administered by the Federal Trade Commission (Lyons and Robbins, 1976).

At the present time the Consumer Product Safety Commission administers and enforces flammability standards concerning four different types of textile products. These four areas are general flammability of clothing textiles, flammability of carpets and rugs, flammability of children's sleepwear, and flammability of mattresses. Several preliminary proposals have been drafted and hearings held concerning the development of standards for the flammability of other textiles (Lyons and Robbins, 1976).

A hearing was held in 1972 in which the Consumer Product Safety Commission proclaimed the necessity for a flammability standard concerning upholstered furniture. It was found through investigations and research, under section 14 of the Flammable Fabrics Act, that:

. . . a flammability standard or standards, or other regulation, including labeling, may be needed for upholstered furniture, and fabrics or related materials intended to be used, or which may reasonably be expected to be used, in these products, to protect the public against unreasonable risk of the occurrence of fire leading to death or personal injury, or significant property damage. (Federal Register, 1972, p. 25239)

Because there was no national flammability standard at that time, upholstered furniture could be purchased by consumers ". . . which through ordinary use would present such foreseeable hazards as continuous slow burning or smoldering and the resultant production of smoke or toxic atmospheres leading to death, injury, or significant property damage" (Federal Register, 1972, p. 25239).

Investigations and research undertaken by the National Bureau of Standards utilizing the Flammable Fabrics Accident Case and Testing System (FACTS) served to establish the basis for the need of a standard for upholstered furniture. Through detailed analysis of 130 upholstery furniture ignition incidents, upholstered furniture ignited first in 93 cases. Ninety-one of the 118 persons were involved in the fire incidents due to their own or someone else's smoking. "Cigarettes (77.97%) and unknown smoking materials (8.1%) were the ignition sources in 74 of the 86 incidents in which upholstered furniture was the first product ignited and the ignition source was known" (Federal Register, 1972, p. 25239).

Following further research, the National Bureau of Standards, in 1974, drafted a proposal for an upholstery standard. Since that time the standard has been under study by the Consumer Product Safety Commission. "The proposal specifies that upholstery fabrics can be classified as A, B, C, and D using burning cigarettes and measuring the char length" (Lyons and Robbins, 1976, p. 17). The burning cigarette must be placed on the cushion surface, all crevices, and other horizontal surfaces such as arms, tops, and backs (Textile Flammability Update, 1975). Class A fabrics are the least flammable classification, with B, C, and D in relative ascending order.

Class D fabrics are those which support combustion by themselves (usually cellulose) and may only be used if a mock up of the furniture demonstrates that the furniture construction prevents significant burning or charring of the specific fabric tested using burning cigarettes in the crevices and seams." (Lyons and Robbins, 1976, p. 17)

To date no action has been taken to put the proposed standard into effect. One possible reason for the delay is that, in January 1976, the Department of Commerce recommended modifications to the proposed draft because of its possible economic impact. The Bureau of Domestic Commerce estimated a 35% increase of manufacturing costs and elimination of many smaller firms if the draft standard went into effect. Economic results of this nature would further depress an already depressed industry (Product Safety and Liability Reporter, 1976). Although these economic factors have had some effect on the progress of the standard, upholstered furniture is being given high priority by the Consumer Product Safety Commission in terms of a flammability standard (Synthesis of a General Wearing Apparel Standard, 1977).

Costs and Benefits

Most present day textile finishings tend to impart functional qualities that supply consumers with improved fabrics at an acceptable cost. "In many cases, finishes are applied for an aesthetic effect or for convenience, but in other cases protection of the consumer is the goal" (Drake, 1976, p. 17). The finishes now receiving greatest attention by the textile industry are flame retardants, which are protective finishes. Past textile finishes have usually been either accepted or rejected by consumers through their personal evaluation of costs and benefits (Blagman, 1974). Yet, with the flammability issue, consumers are not being given the chance to evaluate products since the government

has predetermined that the benefits of flame resistant finishes outweigh their costs.

In regard to the proposed upholstered furniture flammability standard there also exists the unanswered question of whether consumer costs are balanced by the benefits of this legislation. According to Schmitt and Dardis (1976) consumer benefits are a risk reduction and a reduction in accidents which has many indirect benefits to insurance companies and society in general. Consumer costs will include not only a higher price, but also a reduction in product choice and reduced wear life.

Greater consumer costs are the product of greater manufacturing costs. "Upholstered furniture is a \$2 billion (wholesale) industry composed of about 1500 companies, a high proportion of which have less than \$1 million in sales" (LeBlanc Research Corporation Annual Symposium Reviews Developments in Textile Flammability, 1976). For many of the smaller companies the passage of a mandatory flammability standard would mean an end for their business, because they could not absorb the additional increase in cost. Actual wholesale cost increases to the furniture industry have been estimated at 35%. Approximately half of the cost increases would be the result of greater material cost and half would be due to testing and record keeping costs (Product Safety and Liability Reporter, 1976; Lyons and Robbins, 1976).

The cost of testing alone is so great because the upholstery standard involves cigarette resistance, not flame resistance, which requires different flammability technology from that used for apparel fabrics

(Ziolkawski, 1976; Leblanc, 1977). Also, cigarette resistance is an interplay of the various parts of an entire unit of furniture, not just the outer fabric. This requires many costly construction mock ups for each design. Each classification of fabric, A, B, C, or D must be tested on a mock up if it is to be used in actual construction. A, B, and C fabrics may be used in any construction once their classification has been established. Class D fabrics, which support combustion, must be tested on each style of construction for which their use is intended. This will cause a dilemma if the standard does in fact become mandatory since most D fabrics, which constitute approximately 50% of the currently used upholstery fabrics, probably will not pass. Results of this would mean a loss for the consumer since class D fabrics are the most fashionable items and include plushes, velvets, and velours. Class D fabrics are not only aesthetically pleasing, but take stain repellants and are easy to clean (Woven Fabrics for Furniture, Curtains, and Draperies, 1976). If Class D fabrics are made flame resistant, the extra cost to the consumer has been estimated at \$50.00 more per sofa or similar upholstered unit.

Both the consumer and the furniture industry will face greater economic cost if a flammability standard for upholstered furniture does become mandatory. However, the balancing of costs and benefits becomes a question of how much society is willing to spend on protecting its members from injury and death (Schmitt and Dardis, 1976).

Consumer Attitudes

Consumer response to flammability standards already in effect have generally not been as favorable as anticipated. Recent studies of consumer attitudes towards flame retardant garments have shown results tending toward dissatisfaction with the product (Suchecky, 1976). Retailers of flame retardant products such as A. Dean Swift, President of Sears, Roebuck and Company, related an example of how consumer legislation can err by overlooking the preferences of the consumer. Sears' flame retardant outerwear for children was one of the biggest failures in recent catalogue sales history. Even when prices were identical many consumers chose the non-flame retardant brands (Sears in Context, 1976).

Dissatisfaction with flame retardant garments stems from poor performance, confused care instructions, and misunderstanding of the meaning of flame retardancy (Suchecky, 1976). Westfall (1976) related that in a recent survey of consumer attitudes toward flame resistant apparel, mothers of children aged two to fourteen years old, complained the most about poor performance. Garments reportedly wore out easily, especially those made of napped fabrics. In researching consumer laundry practices, Monk (1975) found that 45% of the mothers in the survey did not use an appropriate laundering procedure when washing flame retardant sleepwear. Results also indicated that 20% of the mothers lacked an understanding of the care instructions for flame retardant sleepwear.

This lack of knowledge on the part of the consumer was supported in another survey involving middle and lower class homemakers.

Consumers, especially those with less education, were limited in their awareness of flammability terminology and legislation. However, lower educated homemakers, as well as the higher educated homemakers, thought flame resistance for children's sleepwear and robes, girls' dresses, boys' slacks and shirts, blankets, kitchen curtains or draperies, and mattresses was important. These findings were further verified by the fact that the respondents were willing to pay extra for flame retardancy. Interestingly though, the less educated, lower class respondent was willing to spend an extra dollar for protection whereas the higher educated, higher class respondent was only willing to pay an extra 50 cents (Zentner, Avery, Densmore, Emanuel, Harabin, Lafferty, and Tozier, 1977).

Middle and lower class homemakers were also studied by Patterson (1977) in regard to their attitudes towards flame retardant clothing and the possible expansion of flammability standards. Most of the respondents believed that all consumers should have a choice between special flame retardant and regular clothing. A majority of the homemakers considered flame retardant clothing "very important" for all children up to age 14. They were also willing to pay more for the added protection of flame retardant garments and felt that the government should check products on the market for safety, as well as educate the public about fire hazards. Not only did they feel that government, but also clothing manufacturers should protect the consumer. "Most of the sample did not think that consumers should be responsible for their own protection" (Patterson, 1977, p. 75).

Laughlin (1976) in studying consumer acceptance of flame retardant sleepwear, allowed the respondents to wear test the sleepwear on their children. After allowing their children to wear the sleepwear, 85% of the parents were willing to pay an extra dollar for flame retardant protection. Some consumers also responded that their opinion of flame retardancy had been heightened by use of the product. However, on the less positive side, other consumers became more resentful of the loss of choice resulting from legislation controlling flammable garments.

These various studies in consumer attitudes have revealed some positive and some negative feelings by certain groups of consumers. On the overview, however, it seems that the general response of consumers toward flame retardancy has been dissatisfaction with the product (Sucheki, 1976).

Fire Accidents

The draft proposal for upholstered furniture flammability was originally created as the result of injury statistics which demonstrated upholstered furniture as a threat to consumer safety. The Consumer Product Safety Commission projected 34,000 as the annual number of upholstered furniture related injuries which were treated in hospital emergency rooms. Types of product related injuries were burns and smoke inhalation from flammable fabrics ignition. Fabric was generally ignited by a cigarette or match (TIPS, 1973).

In a study of 172 fatal fires, only 15% of the fires were started in a sofa or chair. Smoking was the cause of fire in 52% of the total

cases. In fatalities related to smoking, 67% of the victims were found to have high levels of alcohol in the blood (Suchecky, 1976). Branson (1976) conducted a similar study of burn injuries in Rhode Island. Clothing ignition accounted for 16.3% of the sampled burn victims. Findings revealed a greater incidence of burn injuries among males than among females except in the four year old age group. A greater accident rate was also found in the lower level socio-economic status (SES) group. The poverty group had a rate three times greater than that of the high socio-economic group. These findings tend to suggest the important part which the human factor plays in fire accidents.

Evaluations of the toxicity of combustion products of cushion and upholstery materials have been performed (Fire Safety in the Home: Relative Toxicity of the Pyrolysis Products from Some Materials Used in Home Furnishings and the Impact of California Regulations, 1976). Using mice as the victims, all died within 30 minutes after ignition of each test fabric. Toxic products from the combustion of wool, feathers, down, and rubberized hair resulted in the shortest time to death while neoprene had the longest time. In another study on burning characteristics of upholstered furniture, Fang (1976) maintained that danger due to high temperature developed quicker than danger to smoke, except where the cushion was made of latex foam. Air temperatures at peak fire conditions ranged from 45° to 520°C with a mean of 180°C. Most upholstered chairs burned in 40 to 86 minutes with an average of 50 minutes.

Summary

The facts and figures presented here do acknowledge the potential danger and hazard of flammable upholstery fabric. Legislators, bureaucrats, and consumer advocates have taken the view that legislation alone will reduce the potential danger. On the other hand, researchers (Word, 1976; Houser, 1975) in the area of textile flammability, feel that legislation alone is not the answer, but can be of limited assistance. Although the necessity for protection from flammable fabrics has been judged from various points, it is certainly worthwhile to explore the consumers' views and perceived needs of governmental protection, since consumers will pay for and benefit from the protection.

Chapter IV

PROCEDURE

This research investigated consumer attitudes towards a possible flammability standard for upholstered furniture in relation to selected demographic and experiential data. Data were collected in Salem, Virginia, using a self-administered questionnaire. The questionnaire was adapted from two instruments previously used in flammability research regarding consumer attitudes.

Instrument

Development of the questionnaire (Appendix A) was the result of selecting items from two questionnaires previously used in flammability research (Zentner et al., 1977; Patterson, 1977) as well as items added by the researcher. The instrument was composed of three sections which yielded consumer opinions, background information, and experiences with fire.

The questionnaire used by Zentner et al. (1977) was originally developed to determine factors influencing consumer demand for flame resistant textile products and was used in the NE-79, Regional Research Project, which was supported by Regional Research Funds from the United States Department of Agriculture. From this instrument questions concerning consumer knowledge of flammability legislation, importance of flame resistance to the consumer, background information, and fire experiences of the consumer were taken. Items determining consumer

opinions of flammability legislation were adapted from Patterson's (1977) instrument which was created to ascertain consumer reactions to a possible extension of flame retardant standards. This instrument was also used as a part of the NE-79, Regional Research. Because both instruments were developed mainly for research concerning clothing flame resistance, the original items were reworded to reflect the fact that upholstered furniture was the focus of the study.

The researcher added items to determine whether the respondents owned a smoke detector and whether they had had fire experiences directly involving upholstered furniture. The McGuire-White Short Form Index of Social Status (1955) was also incorporated into the questionnaire to determine the socio-economic level of each respondent.

Sample

The sample was composed of residents of the City of Salem, Virginia. From a map of the city, streets of various neighborhoods were selected as areas from which the respondents were chosen. These neighborhoods were utilized because it was assumed that they would yield the desired group of middle class women respondents. Middle class subjects were desired since they make up a large percentage of the furniture market (Beem, 1977). Women respondents were exclusively used for two reasons, first to eliminate the variable of sex and secondly for the purpose of comparing results of this study with those of other flammability studies in which only women were used (Zentner et al., 1977; Patterson, 1977).

Collection of the Data

Data were collected by a self administered questionnaire given out by the researcher. The researcher went from door-to-door throughout each neighborhood until an adequate number of questionnaires had been completed. In the event that the women were not home in the daytime, they were contacted again in the evening in order that the sample would be more representative.

All respondents were given the researcher's name, purpose of the study, and a letter of introduction, and were asked whether they would be willing to participate in the study. If the resident was not a female over 18 years of age, the researcher then proceeded to the next house.

The homemakers who agreed to participate in the study were given a questionnaire and asked to complete it while the researcher waited. Ninety-one of the 118 questionnaires handed out were completed with the researcher present. Twenty-seven residents preferred to complete the questionnaire at a later time and were given stamped, self-addressed envelopes in order to return the questionnaires through the mail. Fourteen of these 27 questionnaires were returned, therefore yielding a total of 105 completed questionnaires. Two of the 105 questionnaires could not be used due to insufficient data given by the respondents.

Analysis of the Data

Data collected from the questionnaires were coded and transferred to IBM cards for computer analysis. Frequency counts were used in

the analysis of the data since no significant relationships were found to exist between variables.

Chapter V

RESULTS AND DISCUSSION

The results and discussion of this study were based on data gathered from 103 questionnaires completed by women respondents. Due to the small or non-existent number of cases in some cells, the chi square test was not used to test the existence of any relationships between characteristics of the sample and their opinions and knowledge of flammability standards. Therefore, frequencies of the respondent's demographic data and women's opinions were used to characterize the variables.

Characteristics of the Sample

The sample was predominantly composed of middle aged, middle class women who had some education beyond high school. A majority of the households had an income of \$15,000 or more per year. Most respondents were full-time homemakers in households headed by their husbands (Table 1).

Age of Respondents

Due to the small number of very young and very old respondents, the six age categories contained in the questionnaire were collapsed to three groups in order to make the discussion more meaningful. The three groups were 18 to 34 years, 35 to 44 years, and 45 years and

Table 1
Background Information of the Respondent

Variable	Respondents	
	No.	%
Age		
18-34	34	33.02
35-44	39	37.86
45 and over	30	29.12
Total	103	100.00
Education		
Less than high school graduate	13	12.62
High school graduate	33	32.04
High school and some college	42	40.78
College graduate or beyond	15	14.56
Total	103	100.00
I.S.S.		
Upper Middle	39	37.87
Lower Middle	36	34.95
Upper Lower	28	27.18
Total	103	100.00
Usual Job		
Full-time homemaker	52	50.49
Full-time employment	31	30.10
Part-time employment	20	19.41
Total	103	100.00

older. Of all groups the middle aged, 35 to 44 years, was the largest, comprising nearly 38% of the total sample. The younger group, 18 to 34 years, contained 33% of the sample, and the older group, 45 years of age and over, was the smallest, slightly over 29% of the total (Table 1).

Education of the Respondent

The educational level of the subjects was high. Over half (55%) of the sample had education beyond the high school level. Only 13% of the respondents had less than a high school education and 32% had graduated from high school. Nearly 41% of the respondents had a high school diploma plus some college or professional training. The remaining 14% of the sample had at least a baccalaureate degree or post-graduate work (Table 1).

Socio-Economic Level

Nearly three-fourths (73%) of the sample was classified as middle class. Thirty-eight percent were considered to be in the upper middle class and 35% were classified as being in the lower middle group. The remaining one-quarter of the respondents were upper lower class. Although the McGuire-White Short Form Index (1955), which was used to measure the individual's social status according to education, occupation, and source of income, originally had five socio-economic classifications, these were collapsed into three groups because of the small number of respondents in the upper class and in the lower group (Table 1).

Employment Status

The sample was fairly evenly divided between those respondents who were employed and those who were not. Fifty percent of the sample classified themselves as full-time homemakers. Of those respondents who classified themselves as employed, 30% were employed full-time and 19% were employed part-time (Table 1).

Smoking Habits

Because of the large number of smoking accidents which are linked with the burning of upholstered furniture, smoking habits were investigated. For 57% of the respondents, there was at least one person in the household who smoked cigarettes. Cigars and pipes were much less popular. Only seven percent of the households had a family member who smoked cigars. Twelve percent of the respondents had a pipe smoker in the family. Multiple smoking habits were reported in some cases (Table 2).

Comparable smoking practices were found by Zentner et al. (1977). Sixty-one percent of their sample had individuals in the household who smoked cigarettes. Although Zentner found a somewhat larger group of pipe and cigar smokers, they were still far less than the number of cigarette smokers.

Experiences with Fire

Fire accidents with upholstered furniture were found to be limited in this particular sample. Only four percent reported any

Table 2
Smoking Habits of the Respondent's Household

Variable	Respondents	
	No.	%
<u>Smoking Habits</u>		
Cigars		
Yes	7	6.80
No	96	93.20
Total	103	100.00
Cigarettes		
Yes	59	57.28
No	44	42.72
Total	103	100.00
Pipes		
Yes	13	12.62
No	90	87.38
Total	103	100.00

such incident and of these four percent none involved personal injury. In each case the accident was the result of a smoker falling asleep with a burning cigarette. According to the respondents, the cigarettes burned small areas in the upholstery before they were discovered.

Even though over half of the sample had a smoker in the household, only about one-third (32%) owned smoke detectors. Many of those who owned smoke detectors were also nonsmokers.

Opinions and Knowledge of the Sample

Generally, most respondents had heard of at least one flammability standard for textile products. Also, most felt it was important to have textile products made flame resistant or that the consumer should have the option of purchasing flame retardant textile products. Though most felt it was the responsibility of fabric manufacturers, furniture manufactures, or government to protect consumers from flammable upholstered furniture, the respondents were willing to pay extra for the flame resistant feature in upholstered furniture. Consumers not only felt that government was responsible for protecting consumers, but that the government should either educate the public about the hazards of flammable upholstered furniture or pass laws to protect the consumer or both.

Knowledge of Flammability Legislation

When asked if they had heard of any Federal rules concerning the flammability of children's sleepwear, 95% of the respondents replied that they had. This same survey question asked in 1972 (Zentner et al.,

1977) had a positive response by only 49% of the sample. Differences in results can partly be explained by the fact that a few months prior to this survey, in early 1977, the controversy over the flame retardant, Tris, had flooded the news media. Tris had been used in children's sleepwear as a flame retardant and was later thought to be carcinogenic. It is interesting to note that although many more respondents knew of the children's sleepwear standard in 1977 than in 1972, there was very little difference in consumer knowledge of the carpet and rug standards. In the 1972 survey (Zentner et al., 1977) 18% of the sample had heard of carpet and rug flammability standards whereas in this survey 22% were aware of it. Consumer knowledge of carpet and rug flammability standards did not seem to have increased over the past five years.

Consumers seemed to be more informed about the most recently promulgated flammability standard, that for mattresses and mattress pads, than about carpets and rugs. Of the total sample nearly 45% of the sample responded affirmatively to knowledge of a flammability standard for mattresses.

Although no standard has yet been promulgated for upholstered furniture, 25% of the sample replied that they had heard of a Federal rule or regulation concerning this item. This figure indicated that as many respondents had heard about an upholstery standard as had heard about the standard for mattresses which had already been promulgated. One possible explanation of this relatively large number claiming knowledge of this standard is that there had recently been public service announcements on television cautioning the public

about the fire hazards of burning cigarettes dropped on upholstered furniture. These ads made no mention of flammability standards but could have increased consumer's awareness of the possible need for such a standard (Table 3).

Importance of Flame Resistance

Over half of the sample thought all of the following items should be made to resist burning: girls' dresses, boys' slacks and shirts, blankets, upholstered furniture, and kitchen curtains or draperies. For every item almost the entire remaining portion of respondents felt that the consumer should have a choice between those items which resist burning and those items which do not. Less than five percent of the respondents answered the question with "no opinion" for each item. A very small percentage (less than two percent) felt that girls' dresses, boys' slacks and shirts and blankets should not be made to resist burning. A greater number of respondents, 72%, felt that blankets more than any other textile product in question, should be made to resist burning (Table 4).

Willingness to Pay Extra for Flame Resistance

Just about one-third (30%) of the respondents were not willing to pay extra for flame resistant finishes added to upholstered furniture. The other two-thirds of the sample reported that they would be willing to pay extra for flame resistance in upholstered furniture. Of these two-thirds, only ten percent were willing to pay an added \$50.00 per piece of upholstered furniture. The extra \$50.00 cost was the estimated increase in price if the standard for upholstered furniture was

Table 3
 Respondents' Knowledge of Textile Flammability
 Legislation by Textile Item

Item	Respondents	
	No.	%
Carpets and Rugs		
Yes	23	22.33
No	80	77.67
Total	103	100.00
Children's Sleepwear		
Yes	98	95.15
No	5	4.85
Total	103	100.00
Upholstered Furniture		
Yes	26	25.24
No	77	74.76
Total	103	100.00
Mattresses		
Yes	46	44.66
No	57	55.34
Total	103	100.00

Table 4

Importance to the Respondent of Flame Resistance
for Selected Textile Items by Type of Item

Items	All Should Resist Burning		Consumer Should Have a Choice		None Should be Made to Resist Burning		No Opinion	
	No.	%	No.	%	No.	%	No.	%
Girls' Dresses	60	58.25	38	36.89	2	1.94	3	2.91
Boys' Slacks and Shirts	58	56.31	38	36.89	2	1.94	5	4.85
Blankets	74	71.84	26	25.24	1	0.97	2	1.94
Upholstered Furniture	65	63.11	34	33.01	0	0	4	3.88
Kitchen Curtains or Draperies	69	66.99	29	28.16	0	0	5	4.85

actually promulgated. Most respondents, 41%, found \$10.00 or \$20.00 an agreeable amount to pay extra for flame resistant upholstered furniture (Table 5).

Responsibility for the Protection of Consumers

It was thought by 27% of the sample that furniture manufacturers should be responsible for protecting consumers from the fire hazards of upholstered furniture. Another 23% felt that fabric manufacturers should be responsible and 20% thought both furniture and fabric manufacturers should be responsible. This gives a sum of 70% of the respondents who felt either furniture or fabric manufacturers, or both should protect consumers. Only 19% deemed consumer protection to be the responsibility of the government. An almost negligible portion of respondents, eight percent, thought consumers should protect themselves. Patterson (1977) had similar findings, in regards to clothing: consumers were generally more inclined to place the responsibility for fire protection on government or manufacturers than on themselves (Table 6).

Governmental Role in Consumer Protection

When asked about the governmental role in consumer protection, the sample overwhelmingly answered that the government should take some sort of action to protect consumers. Fifty-eight percent believed that it was the responsibility of the government to educate the public as well as pass laws in order to protect the public from the fire hazards of upholstered furniture. Education of the public was thought

Table 5
 Respondents Willing to Pay Additional Money for
 Upholstered Furniture with Flame
 Resistant Qualities

Amount	Respondents	
	No.	%
\$ 0.00	31	30.39
10.00	22	21.57
20.00	20	19.61
30.00	14	13.73
40.00	4	3.92
50.00	11	10.78
Total	103	100.00

Table 6
Responsibility for the Protection of Consumers

Item	Respondents	
	No.	%
Government	19	18.45
Consumers	8	7.77
Furniture Manufacturers	28	27.18
Fabric Manufacturers	24	23.30
Furniture and Fabric Manufacturers	20	19.42
Other	4	3.88
Total	103	100.00

to be sufficient action for the government by 16% of the women. Twenty-two percent favored only the passage of laws for protection. An almost insignificant six percent thought the government should take no action against the hazards of upholstered furniture. A vast majority of respondents agreeing that government should have some role in protecting consumers was also revealed in Patterson's (1977) study (Table 7).

Conclusions

In examining consumer opinions of a flammability standard for upholstered furniture, the major finding was that consumers generally are undereducated in regard to the proposed flammability standard for upholstered furniture, but they do believe the standard should exist. The fact that some respondents claimed to have heard about a Federal regulation concerning the flammability of upholstered furniture when none actually exists, points out confusion and misunderstanding among consumers. This lack of knowledge was also found when the consumer was questioned about other existing textile flammability standards.

Although the consumers lacked complete awareness of the flammability issue, all felt that some, if not all, upholstered furniture should be made to resist burning. Most also felt that the government should pass laws to insure the flame resistance of upholstered furniture. From this it can be concluded that consumers are generally in agreement with the efforts of the Consumer Product Safety Commission to pass a regulation concerning the flammability of upholstered

Table 7
 Government's Role in the Protection of Consumers

Role	Respondents	
	No.	%
Educate the public	16	15.53
Pass laws	23	22.33
All of the above	58	56.31
None of the above	6	5.83
Total	103	100.00

furniture. Consumers are also in agreement with the Consumer Product Safety Commission in that both feel it is the responsibility of furniture and fabric manufacturers to provide this protection from flammable upholstery.

Although consumers are in favor of a flammability standard, most are not willing to bear the entire cost of the protection they want. In essence, the consumer would like to have protection from flammable upholstered furniture, but if it were available they would not be willing to pay the price for that protection.

Demographic data from the consumers was also investigated. Statistical analysis did not reveal the existence of any relationships between age, education, social class, smoking habits, fire experiences, knowledge of flammability standards and their opinions of a flammability standard for upholstered furniture. Perhaps the investigation of other characteristics of the respondents would disclose factors which influence consumer opinions, thereby giving a greater understanding of the consumer.

Chapter VI

SUMMARY AND SUGGESTIONS FOR FUTURE RESEARCH

In an effort to protect consumers from the hazards of flammable textile products, several flammability standards have been promulgated in recent years. Textile products which are now under the control of these various flammability standards include general wearing apparel, children's sleepwear, mattresses and mattress pads, and carpets and rugs. The Consumer Product Safety Commission had also considered standards for other textile products including upholstered furniture. There have been many pros and cons expressed by researchers, manufacturers, and other experts in the field of flammability on the worth of a flammability standard for upholstered furniture. However, since the consumer had not yet been asked to express his views on the subject, it was the purpose of this study to investigate consumers' opinions in order to gain a better understanding of this particular area of the flammability issue.

The specific objectives of this research were:

1. To determine the opinions of a selected group of consumers toward a flammability standard for upholstered furniture.
2. To determine whether any relationships exist between the opinions of a selected group of consumers towards a flammability standard for upholstered furniture and the following:
 - (a) age
 - (b) education

- (c) social class
- (d) importance placed on flame resistance
- (e) knowledge of flammability standards
- (f) smoking habits
- (g) fire experiences

A review of the literature revealed that the proposed standard for upholstered furniture was quite complicated as well as costly if enforced. Because of its high costs, manufacturers were generally opposed to the standard. Although no studies on consumer opinions toward a flammability standard for upholstered furniture could be found, other studies dealing with consumer opinions toward flame resistant textile products such as children's sleepwear, revealed that consumers were not entirely content with the product. Most consumers considered flame resistance important, but also expressed dissatisfaction with the product.

To investigate consumer opinions toward a flammability standard for upholstered furniture a questionnaire was developed from two questionnaires (Zentner et al., 1977; Patterson, 1977) previously used in flammability research as well as questions developed by the researcher. The sample was a group of residents selected from various neighborhoods in the city of Salem, Virginia. One-hundred-three respondents completed the self-administered questionnaire. Due to the fact that no statistically significant relationships were found, frequency counts and percentages were used as the basis for the discussion of results.

Results of the study indicated that the respondents felt it was important to have upholstered furniture made flame resistant or that the consumer should at least have the option to purchase flame resistant upholstered furniture. Most respondents felt it was the responsibility of fabric and furniture manufacturers to protect the public against the hazard of flammable upholstered furniture and that the government should pass laws to insure that consumers would get this protection. Although respondents did want flame resistant upholstered furniture, most were not willing to bear the extra cost of the added feature. These opinions were analyzed in terms of the respondents' age, education, social class, smoking habits, fire experiences and knowledge of flammability standards, but no significant relationships were revealed.

Suggestions for Future Research

Implications for further research on the issue of consumer opinions toward a flammability standard for upholstered furniture are:

1. Studying the opinions of a larger group of consumers from various geographic locations throughout the United States would enable the researcher to generalize results over a larger population.
2. Including men as well as women in a similar study may give a broader understanding of consumer opinions since men are also consumers of furniture.
3. Investigating the opinions of recent purchasers of upholstered

furniture may give a more exact representation of the opinions of the furniture market.

4. Comparing different groups of consumers, those who are educated on the flammability issue and those who are not, may reveal the results and value of consumer education on such a subject.

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APPENDIX A

CONSUMER QUESTIONNAIRE

Please answer each of the following to the best of your ability. There are no right or wrong answers.

SECTION I
Consumer Opinion

1. Have you heard about any federal rules which prevent the sale of certain textile items, especially those which burn easily? Check yes or no for each of the following items.

	<u>YES</u>	<u>NO</u>
a. carpets and rugs	_____	_____
b. children's sleepwear and robes	_____	_____
c. upholstered furniture	_____	_____
d. mattresses	_____	_____

2. What do you think about the importance of having the following items made to resist burning? Put the number of your answer in the space provided by each item.

_____ a. girl's dresses	1. all should be made to resist burning.
_____ b. boy's slacks and shirts	2. The consumer should have a choice between those made to resist burning and those not made to resist burning.
_____ c. blankets	3. None should be made
_____ d. upholstered furniture	4. I have no opinion.
_____ e. kitchen curtains or draperies	
_____ "Other" items (list)	
_____ f. _____	
_____ g. _____	

3. Suppose you wanted to buy an upholstered chair priced about \$150.00, how much extra would you be willing to pay for the same chair if you knew it had been made to resist burning? (Check one.)

Nothing _____	\$10.00 _____	\$20.00 _____
\$30.00 _____	\$40.00 _____	\$50.00 _____

4. Which one of the following do you feel should bear the major responsibility of protecting consumers from upholstered furniture which might burn? (Check one.)
- _____ a. government
- _____ b. consumers
- _____ c. furniture manufacturers
- _____ d. fabric manufacturers
- "Other" (list)
- _____ e. _____
- _____ f. _____
5. In order to eliminate more accidents involving the burning of upholstered furniture, which of the following do you think the government should do?
- _____ a. carry out programs to educate the public
- _____ b. pass laws requiring that upholstered furniture be made to resist burning
- _____ c. both a and b
- _____ d. none of the above

SECTION III
Background Information

1. What is your age? (Check one.)
- | | |
|----------------------|----------------------------|
| _____ a. 18-24 years | _____ d. 45-55 years |
| _____ b. 25-34 years | _____ e. 55-64 years |
| _____ c. 35-44 years | _____ f. 65 years or older |

2. What is the extent of your education?

- a. less than 8th grade
- b. finished 8th grade
- c. some high school
- d. high school graduate
- e. some college or after high school professional training
- f. graduate from four year college
- g. education beyond bachelor's degree
- h. Other (explain) _____

3. What is your usual job?

- a. full-time homemaker
- b. full-time employment (30-40 hours per week)
- c. part-time employment (less than 30 hours per week)
- d. employed, but do the work at home
- e. Other (explain) _____

4. Who is the head of the household; that is, the main wage earner?

- a. husband
- b. yourself
- c. both (husband and yourself)
- d. Other (explain) _____

9. What is the one major source of your family's income? (Check one.)

- _____ a. inherited savings and investments
 _____ b. savings and investments
 _____ c. profits, fees from business or profession
 _____ d. salary, and or commissions, and or monthly check
 _____ e. weekly check and hourly wages
 _____ f. odd jobs, seasonal work
 _____ g. public relief or assistance

SECTION III
Experiences with Fire

1. Do you have a smoke detector in your home? Yes _____ No _____

2. Are there any people in your home who smoke any of the following?
Check yes or no for each type of smoking.

<u>Type of Smoking</u>	<u>Yes</u>	<u>No</u>
a. cigars	_____	_____
b. cigarettes	_____	_____
c. pipe	_____	_____

3. Has there ever been a fire accident in your home involving upholstered furniture?

Yes _____ No _____

IF THE ANSWER TO QUESTION #3 WAS NO, YOU HAVE FINISHED FILLING OUT THE QUESTIONNAIRE.

4. If the answer to question #3 was "yes," was anyone injured by the fire?

Yes _____ No _____

5. If the answer to question #4 was "yes," how badly was the person injured? (Check one.)

- a. needed only first aid treatment
- b. needed only to be in the hospital a couple of days
- c. needed to be in the hospital for a week or more
- d. died as a result of the fire

6. How do you believe the upholstered furniture caught fire?

THANK YOU FOR YOUR TIME AND COOPERATION IN FILLING OUT THIS QUESTIONNAIRE.

APPENDIX B



VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

COLLEGE OF HOME ECONOMICS

Blacksburg, Virginia 24061

DEPARTMENT OF CLOTHING, TEXTILES AND RELATED ART

June 1977

Dear Resident,

I am a graduate student at Virginia Polytechnic Institute and State University working on a master's degree in Home Economics. Currently, I am involved in research concerning consumer attitudes towards textile flammability. In order to complete my research I need some information from women consumers concerning their feelings about flame resistant textile items.

To obtain this information a questionnaire is being used. Your time and effort in filling out this survey would be greatly appreciated.

So that your response will be completely anonymous, do not sign your name to the questionnaire. Please feel free to express your opinions as honestly as possible.

Thank you for your time and help.

Sincerely,

Mary Ann Gardner

Mary Ann Gardner
Graduate Student
Virginia Polytechnic Institute
and State University

Lois M. Gurel

Dr. Lois M. Gurel
Thesis Director
Virginia Polytechnic Institute
and State University

VITA

Mary Ann Gardner was born in Roanoke, Virginia on September 10, 1954. After graduation from Andrew Lewis High School, Salem, Virginia, she entered Longwood College. Majoring in Home Economics with an option in Clothing and Textiles she received a Bachelor of Science Degree in May of 1975.

In June 1975 the author entered the Graduate School of Virginia Polytechnic Institute and State University as a candidate for the Master of Science Degree, with a major in Clothing, Textiles and Related Arts. While attending graduate school she worked as a Graduate Teaching Assistant in Related Arts. Requirements for the Master of Science Degree in Clothing, Textiles and Related Arts were completed in October 1977.


Mary Ann Gardner

CONSUMER OPINIONS REGARDING A FLAMMABILITY
STANDARD FOR UPHOLSTERED FURNITURE

by

Mary Ann Gardner

(ABSTRACT)

In an effort to determine consumer opinions concerning a proposed standard for upholstered furniture, a consumer survey was conducted in June, 1977. One-hundred-three women completed a self-administered questionnaire. Information collected by the questionnaire included background information, consumer opinions, and experiences with fire. Since no significant relationships were found among variables, the data were analyzed by the use of frequency counts.

The sample of women respondents was found to be composed mainly of middle aged, middle class women. Education of the sample was fairly high, nearly the entire sample had at least a high school education. Approximately half of the sample was employed either full-time or part-time.

Consumer knowledge revealed by the questionnaire was that most respondents had some awareness of at least one flammability standard for textile products. Generally, most felt that the flame resistant quality in textile products was important. Responsibility for protecting consumers from flammable upholstered furniture was placed on fabric manufacturers, furniture manufacturers or the government. The

sample also generally responded that the government should pass laws to protect consumers or educate the public about the hazards of flammable upholstered furniture. Although most respondents did not feel it was consumers' responsibility to protect themselves against flammable upholstered furniture, most were willing to pay extra for the protection when buying upholstered furniture. Yet very few were willing to pay the amount estimated to be the added cost of making upholstered furniture flame resistant.

Results of this research indicate that middle class, middle income, fairly well educated women are in favor of a flammability standard for upholstered furniture, but are not willing to pay the entire added cost of this protection. Although most of them were aware of flammability standards, most needed to be better educated as to which products have standards regarding flame resistance and which do not.