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Attitudes Concerning Fire Preparedness in a Midwestern City: A Survey and Reverse Records Check

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ATTITUDES CONCERNING FIRE PREPAREDNESS
IN A MIDWESTERN CITY: A SURVEY AND
REVERSE RECORDS CHECK

209

by

Michael A. McDaniel

A Thesis Submitted to the Faculty of the Graduate School
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VITA

The author, Michael A. McDaniel, is the son of Dr. and Mrs. William E. McDaniel. He was born November 28, 1953, in Wilmington, Delaware.

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Recent evidence has indicated that the United States record on fire safety is a poor one. The report to Congress from the National Commission of Fire Prevention and Control states that the United States leads all major industrial countries in per capita deaths and property loss due to fire (America Burning, 1972). A survey sponsored by the National Fire Prevention and Control Administration (NFPCA) documents the extent of the problem (Buchbinder and Mathers, 1974). The NFPCA estimates that the yearly number of household fires is 5,575,000, property loss is estimated at 1.5 billion dollars and injuries were estimated to exceed 327,000.

One cause of this situation can be attributed to the lack of systematized knowledge in the fire field. Little is known about the many factors which affect the fire system, both in terms of the physical dynamics of fires and human behavior in relation to fires. This state of affairs is related to the lack of research interest in the fire field, the lack of funds available for such research, and methodological problems associated with fire research.

Canter and Matthews (1976) and Bickman (1976) discuss several of the factors which make it difficult to study human behavior in relation to fire. They note that the infrequency of fires constrains the sample to be studied. Also fires are largely unpredictable, and when they do happen many crucial behaviors and events occur in a very short time. Since fires tend to be threatening, measurements such as verbal reports may be subject to extensive biases. Canter and Matthews detail several potential methodologies which can be employed. They suggest that case studies, surveys, field experiments, laboratory experiments and simulation could all prove worthwhile.

Survey methodologies have been utilized by the majority of researchers studying behavior in fires. These surveys have attempted to provide information concerning attitudes toward fires. While these studies are limited, they do provide some insight concerning human behavior and fires. Melinek, Wooley and Baldwin (1973) conducted a survey concerned with attitudes relating to fires, public awareness of risks, and attitudes towards risks. Their sample consisted of people attending an open house at the Fire Research Station in Great Britain. Melinek et. al. considered their sample to be unrepresentative of the population, but accepted this limitation, as the project was intended only to test the feasibility of the method. They reported that when given the choice between carelessness and unforeseeable accidents, 92% of the respondents judged carelessness to be the cause of fires.

Another survey was employed by Phillips (Minority Report of the National Commission on Fire Prevention and Control, 1973). This survey was designed to be used in schools as a learning aid in teaching fire safety. Unfortunately, little data were presented. Phillips, however, does discuss some limited findings from a national fire safety survey. Of the sample surveyed, less than 30% of the teenagers questioned knew that one should crawl in the presence of smoke. Also half of the children from 7 to 18 would behave inappropriately if a frying pan were on fire. In addition, over 500 people of the sample (sample size was not stated) did not know that opening a hot door in a fire would expose them to heat beyond human tolerance levels.

Zachary and Crossman (1973) also used a survey methodology to examine the role of the building occupant as a fire fighter. Since most fires are extinguished by the building occupants and not by the fire de-

partment, they suggested that more resources be devoted to the occupant as a fire fighter.

A survey of fire safety preparation in high rise buildings was conducted by Crossman and Wirth (1975). They examined the extent and nature of fire hardware, public address systems, escape routes, and the prevalence of personnel assigned to fire safety organization. Unfortunately their sample consisted of only 20 high rise buildings and the variation in types of buildings studied (residential, business, etc.) make their findings difficult to interpret.

Preliminary results from a national survey of household fire incidents were reported by Buchbinder and Mathers (1974). The sample contained 33,000 households selected for the Bureau of Census Current Population Survey. The survey results provided a national yearly estimate of the number of fires, injuries and property loss. The causes and types of fires were also examined. Portions of their preliminary results were presented in the beginning of this paper. As of the present, the full results have not been released.

A less extensive fire incident survey was reported by Globerson and Crossman (1971). They reported a fire incidence rate of 0.07 fire incidents per person per year. Their survey focused on the location of the fire and the fire fighting techniques employed. Limited insights can be gained from these findings. Knowledge of appropriate behavior in fires seems lacking. Also contrary to common expectations, the majority of fires are extinguished by building occupants and not the fire department.

As can be seen, research regarding fires, fire safety organization, and its relation to human behavior is only in its infancy. Little

work has been done on the role of attitudes in fire preparation. As well, there has been no thorough treatment of citizens' knowledge of fire prevention practices, nor has fire safety planning received much systematic study. To help fill these gaps in knowledge, a survey was undertaken to explore the nature, extent and dimensions of fire preparedness in a mid-western city. The survey explored respondent's attitudes toward fire safety, their knowledge of appropriate behavior in fire emergencies, their fire preparation practices and hardware as well as other items relating to fire preparedness.

This report details the results of that survey. In addition to a randomly selected sample of households, the survey was also administered to a sample of persons known to have been victims of fires. A reverse records check, which compares the fire victims responses to data in fire department records, was performed. The purpose of a reverse records check of fire victims survey responses is to examine non-sampling error in such surveys. The need for a study of non-sampling error in fire reporting on surveys was clear after a review of the literature.

Buchbinder (1975) and Buchbinder and Mathers (1974) presented preliminary findings from the first United States national household fire experience survey. They point out that in survey work there are two general categories of error commonly referred to as sampling and non-sampling error. Sampling error is the random variation in samples of a specified size for a given sampling plan. This variation can be expressed in probabilistic terms and thus can be estimated. Non-sampling error constitutes all other error including response error, non-reporting error and processing error. A respondent giving the incorrect date of a fire to the interviewer would be an example of response

error. A non-reporting error would be present when a respondent, who had been a victim of a fire, failed to report the fire incident to the interviewer. Coding mistakes are examples of processing error. While sampling error is probabilistic, non-sampling error is not and thus estimates of non-sampling error are not as easily obtained. Buchbinder and Mathers note the need for special studies of non-sampling error in fire experience surveys. As well, Crossman and Zachary (1974) discuss the efforts of their research group in obtaining reliable data concerning fire incidents. In earlier surveys conducted by their associate S. Globerson (Crossman and Zachary, 1974), it was revealed that less than 30% of all fire incidents were actually reported to the fire department. Thus, fire department records could not provide complete information concerning fires needed for rational policy decisions. For example, if a community oriented fire safety training program was developed based solely on data from fire department records, it may not place sufficient emphasis on fire mishaps which eventuate in fires not reported to the fire department. Surveys of citizens would be needed to determine the true fire incidence rates as well as information related to the fire incidents.

Crossman (1975) has noted a fire incident reporting pattern which he attributes to non-sampling error. In his technical report, he detailed the apparent failure of building occupants to recall minor fire incidents and suggests that this follows the pattern of a forgetting curve such that more recent fires are more likely to be reported.

While no other papers relating to non-sampling error in fires is known to the author, some related research can be found in the crime reporting literature. The Statistics Division of the National Institute

of Law Enforcement and Criminal Justice issued the results of a statistical methods test of known crime victims (June, 1972). The test was part of a series of methodological studies designed to analyze victim recall, victim cooperation, and the classification of victim-reported events into officially recognized crime categories.

The survey employed a probability sample of 620 persons who were known to have been victims of specified crimes during 1970. The study found that a reference period of twelve months was not worse than one of six months for simply assessing whether a crime occurred. However, to place an occurrence in a specified time frame (month or quarter), respondents displayed more accuracy with a six month reference period than a twelve month reference period. With the exception of assault and rape victims, crime victims reported the crime incident in the interview a high percentage of the time. Approximately, two-thirds of the rape victims and one-third of the assault victims reported the crime to the interviewer.

Another pertinent study was the Portland Forward Records Check of Crime Victims (Schneider, 1977). While a reverse records check identifies victims from official records, and then interviews the victims, a forward records check first interviews a sample of respondents to identify victims, and then examines official records for corroborative data. Schneider's study isolated 212 particular crime incidents from the survey for which corroborative police data could be obtained. It was found that while there were some differences between survey responses and police records, the differences were seldom extensive enough to alter the classification of the crime incident. Interestingly, she found little evidence to support the hypothesis that a shorter recall period would

improve the quality of the survey data in terms of accuracy or richness of detail. As well she found no evidence that age, race, sex or educational level are related to forward telescoping. Forward telescoping, in this context, is the tendency of respondents to inappropriately report crime incidents as occurring during the reference recall period when in reality the incident occurred prior to the recall period.

SURVEY TOPICS

A description of the survey topics will now be presented. The survey items represented several topics which were judged to be related to the concept of fire preparedness as a social psychological construct. Among these were attitudinal items, items pertaining to perception of the community's fire problem, knowledge of fire safety, sources of fire safety knowledge, self ratings of preparedness, fire suppression hardware, experience with fires, behavioral reports of fire safety practices and demographic information. A copy of the survey can be found in Appendix A.

Attitudes

Attitudes combined with other factors are considered to be useful in analyzing human behavior. From a review of the limited literature, several attitudinal topics were judged by the investigator to be relevant to the study of fire preparedness. Among the topics addressed in the survey were attitudes toward personal risk relating to fires, fire education and training, building structure and its relation to fire safety, and attitudes toward fire fighters. All the attitudinal items were presented in a four point Likert response format.

Community Perception of Fires

Other survey items were intended to assess the respondent's perception of the community's fire problem. It was judged that an assessment of the community's fire problem would be relevant to a study of fire preparedness. Respondents were asked to estimate the number of deaths due to fires and the number of building fires in their community during a specified time period. A multiple choice response format was

used for these items.

Knowledge of Fire Safety Practices

An additional topic area, judged important to the study of fire preparedness, was the respondent's knowledge of fire safety practices. This knowledge was assessed in three ways. One type of item was read as a statement to which the respondent could agree or disagree. These items have a four-point Likert response format and were integrated into the attitudinal item section. Scenarios comprised the second group of knowledge items. Respondents were asked what course of action they would follow in specific fire emergencies. Additional items requested the sources of the respondent's fire safety knowledge.

Self-Ratings of Fire Preparedness

Respondents' ratings of their own fire preparedness were judged to be relevant to a study of fire preparedness. The response format of these items consisted of four or five point rating scales with verbal descriptions attached to each rating scale point. Respondents were asked to rate the extent of their fire prevention knowledge, their knowledge of appropriate behavior in fire emergencies, and their perception of their household's preparation.

Fire Safety Hardware

It was judged that a study of fire preparedness would be lacking if it did not examine the prevalence of fire alarm systems and fire extinguishers in the respondents' households. To this end, respondents were asked about the availability of fire extinguishers for use in their household as well as the existence of alarm systems in their building or household.

In summary, survey items were selected to measure indicators which

seemed relevant to a study of fire preparedness. A review of the literature suggested some areas which seemed wise to include, while other topics were dictated by the investigator's judgments.

METHOD

Two samples of respondents were employed in this survey. For one sample the survey universe consisted of all Evanston, Illinois residents who had telephone numbers with Evanston telephone prefixes during November, 1976. Randomly generated four digit numbers were affixed to Evanston telephone prefixes to form seven digit telephone numbers. Evanston telephone prefixes are not geographically specific, that is, each of the Evanston prefixes can be found in any area of Evanston. At the time the telephone number sample was prepared, there were eight Evanston prefixes, which were not all equally common. The random sample phone number prefixes appeared in the same proportion as the telephone prefixes appeared in the population.

A second sample universe consisted of Evanston, Illinois residents who were victims of household fires reported to the fire department during the months from September 1975 through August 1976. The log book of the Evanston Fire Department for that twelve month period was examined. The fire department fire incident identification number was recorded for the 254 cases which appeared to have been fires in occupied households. The fire records for these 254 cases were then examined to obtain the name, address and phone number of the fire victim. For those cases which did not have a phone number listed, an attempt was made to obtain the phone number from directory assistance. Of these 254 fire cases, phone numbers were obtained for only 132 cases. Of these 132 phone numbers of known fire victims, 27 were used in the extensive pilot testing of the questionnaire. The remaining 105 phone numbers were randomly mixed with randomly generated phone numbers of the other sample.

Only household residents were interviewed. In order to be eligible the respondents had to be in their household at the time of the interview, age 18 or over, and able to speak English. Advanced undergraduates in a social psychology class conducted the majority of the interviews as partial fulfillment of course requirements. The remaining surveys were conducted by the investigator and graduate student volunteers. All interviewers were made familiar with the survey, trained in its use, and made aware of the need for confidentiality of all data collected prior to the beginning of their interview tasks.

Respondents from the sample of randomly generated phone numbers were interviewed using one of two surveys. One survey, the abbreviated survey, consisted of a few questions to determine the eligibility of the respondent, a question concerning if they had been victim of a fire, and offers of a fire safety inspection and fire safety literature. The abbreviated survey respondents were to serve as a control group in an analysis to test the reactivity of a more extensive survey. Respondents from the random sample who received the more extensive survey were to serve as the treatment group and the dependent variable was to be a fire safety inspection score derived from a fire department safety check. However, it was subsequently judged that the obtained sample size of the abbreviated survey respondents was too small to be useful, and consequently the reactivity experiment was dropped from the research plans. The full survey, the topic of this report, was also administered to the respondents from the sample of fire victims.

A total of 139 random sample numbers were called in attempts to administer the abbreviated survey. Eligible respondents were reached at 64 of the numbers and of these 64 eligible respondents 48 (75%) grant-

ed an interview while the remaining 16 refused participation. Of the 75 numbers where eligible respondents were not obtained, 40 numbers were not in service, 20 numbers were not residences, 12 were called five times with no response, and 3 were called less than five times with no response.

Comparable figures for the random sample cases to receive the full survey reveal that 651 phone numbers were called. Of the 267 eligible respondents reached, 151 provided an interview, 101 declined participation, and 15 interviews were prematurely terminated by the respondents. A response rate of 56.6% was thus achieved. No major significance is attached to the finding of a lower response rate for the full survey administration to random sample cases. The abbreviated survey's interviewer introduction told the potential respondent that the survey would take two minutes of the respondent's time. Interviewers, employing the full survey, instructed the potential respondent that the survey would require fifteen minutes. The difference in time demands is judged to be the reason for the varying response rates.

Of the remaining numbers called 199 were not in service, 111 were not residences, 54 were called five times with no response and 20 were called less than five times with no response.

As stated previously the full survey was to be administered to all cases from the sample drawn from fire department records. Of the 105 cases with phone numbers available, 76 eligible respondents were contacted. Of the 76 potential respondents 34 refused to participate and 42 people granted an interview. This eventuates in a 55.3% response rate. Of the remaining cases, 11 numbers were not in service, 8 numbers were not residences, 5 were called five or more times with no response, 1

was called less than five times with no response. The fate of the four numbers is unknown as an interviewer failed to return the sheet of paper on which the relevant information was recorded. However, it is known that interviews were not obtained for those numbers.

Interviews obtained from the sample of random numbers yielded a response rate of 56.6%, while interviews obtained from the sample of known fire victims eventuated in a response rate of 55.3%. It can be concluded that the response rates for the two samples were equivalent.

However, it would be inappropriate to compare the response rate of the random sample with the response rate of the fire sample, as the calling procedures for the two samples were different. When no one answered the phone, interviewers were instructed to recall the number on another day during a time at least two hours removed from the previous phone call. If, after five attempts, no party answered the call, the phone number was no longer eligible to be called. In the interest of maximizing the number of respondents from the fire sample, the investigator monitored the fire sample numbers. If a fire sample number was called five times and dropped from the list of numbers eligible to be called, the investigator reissued the phone number as a number which was available to be called. The interviewers were not aware of this procedure. While this practice may have increased the number of respondents from the fire sample, it prohibits any legitimate comparison of response rates.

RESULTS

The presentation of the results will begin with an assessment of the representativeness of the random sample respondents. The substantive findings of the survey will then follow. A brief discussion detailing the lack of differences in survey responses between the fire sample respondents and the random sample respondents will be subsequently presented. Finally, the major findings of the reverse records check, utilizing the fire sample respondents, will conclude the presentation.

Sample Representativeness

A total of 151 interviews from the random sample universe were obtained. The sample tended to be highly educated. College graduates with bachelor degrees accounted for 30.2% of the sample while an additional 24.2% had education beyond the bachelor's level. Respondents who had some college but who did not graduate accounted for 21.5% of the sample. High school graduates made up 18.8% of the sample, and 5.4% had some high school education or less.

Other demographic information which can be compared to 1970 census data was also collected. All census data quoted in this report was drawn from the Suburban Factbook 1973 published by the Northern Illinois Planning Commission. Caucasians constituted 80.5% of the sample. Black respondents made up 16.1% of the sample and other races accounted for 3.4% of the sample. The corresponding 1970 census figures for these three groups were 82.1%, 16.1% and 3.6%. Thus, the racial composition of the sample was almost identical to that of the population in 1970.

An age by sex breakdown of the sample and the corresponding 1970 census information is presented in Table 1. The census figures in Table

TABLE 1

Age by Sex Breakdown of the Survey and the 1970 Census*

AGE	18 - 20		21 - 64		65 and Over	
	Male	Female	Male	Female	Male	Female
SURVEY	2.0	0.7	26.7	51.3	4.7	14.7
1970 CENSUS	4.4	5.2	32.7	38.8	6.5	12.4

* The census figures presented were adjusted to exclude those under 18. This adjustment was done in order to make them comparable to the survey figures.

1 were adjusted to make them comparable to the figures obtained from the survey. An adjustment was necessary because the survey was a random sample of potential respondents who were 18 years and older, while the census percentages reflect all age groups. Thus, while males between 18 and 20 years of age constituted 3.3% of Evanston's population in 1970, they made up 4.4% of the population which was 18 and older.

A chi-square analysis was performed to assess if the frequency distribution of survey respondents across the age/sex grouping was different from that expected given the 1970 census figures. A significant chi-square value was obtained, $\chi^2 = 17.07$, $df = 5$, $p < .01$. This finding indicates that the age/sex distribution of the survey respondents is different from that of the Evanston population during 1970.

Survey respondents who owned their own home accounted for 60% of the sample while those who rented accounted for 40% of the sample. The 1970 census figures detail the reverse. Renters comprised 58.3% of the household respondents, while owners comprised 41.7% of the sample.

A chi-square analysis was performed to assess if the obtained frequencies of renters and home owners was statistically different from the frequencies that would be expected given the 1970 census figures. A significant chi-square value was found, $\chi^2 = 19.95$, $df = 1$, $p < .001$, which indicates that the number of survey respondents owning and renting is different than what one would expect based on the 1970 census figures. The attitudes taped by this research over represents female opinions and under represents the opinions of 18 to 20 year olds.

Factor Analysis of Fire Preparedness

The concept of fire preparedness is a relatively nebulous construct. A factor analysis was performed on the 19 Likert attitudinal items in an

attempt to clarify what is meant by fire preparedness. One of the advantages of factor analysis is its data-reduction capability. Given a matrix of correlation coefficients for a set of variables, factor-analytic techniques enable one to see whether some underlying pattern of relationships exist in the data. If an underlying structure to the data exists, the data may be summarized by a small set of components or factors which may be considered as variables. These factor variables are viewed as accounting for the observed interrelations in the data.

A factor analysis of the 19 Likert items yielded only one interpretable factor. This dimension seemed to reflect what should or should not be done to promote fire safety. The two items which had the highest loading on the factor were as follows:

There should be a law requiring all households to have fire alarm systems

Houses should be built to be fireproof regardless of cost.

When the self ratings of fire preparedness were included in the factor analysis, they loaded on a second factor. It is likely that this is due to their method variance. Specifically, the self ratings of fire preparedness had a different response format than the Likert items and it seems likely that the two response formats produced the two factors rather than the factors reflecting the content of the items.

The respondents' responses to the scenarios were rated according to their appropriateness for the situation. When these scenario ratings were included in the factor analysis, they failed to load on any one factor and the factors on which they did load were not interpretable.

The purpose of the factor analysis was to clarify the meaning of "fire preparedness" by examining the ways it might be measured. Ideally one or more underlying dimensions would have been uncovered. The results

proved less than adequate. No insights were gained into the meaning of "fire preparedness." The factors which emerged seemed to reflect the format of the question asked rather than the content of the item. Before a researcher tries to replicate or expand these questions, one might question the expectation that fire preparedness has an underlying structure.

Attitudes Toward Fires

In addition to the factor analysis of the Likert attitudinal items, frequencies of various responses were also examined. For the purpose of clarity, the frequencies of strongly agree and somewhat agree were summed to provide the frequency of the agree response. The same procedure was employed for the disagree responses.

Three of the items were related to the respondent's perception of control over fires. Almost all of the sample, 94.7%, agreed that household fires are caused by the careless actions of people. As well, 92.0% disagreed that there was little they could do to prevent a fire in their home. While most of the respondents expressed perceived control over fire, 66.4% agreed that the chances of them being in a fire in the future were slim. The sample had homogeneous attitudes toward training. Almost all of the sample (98.7%) disagreed that fire safety training in school is a waste of time, and 98.0% agreed that training could greatly reduce the number of deaths due to fires.

The respondents' attitudes toward fire preparation in nursing homes. The sample responses were again relatively homogenous. The statement that nursing homes should be inspected by the fire department at least once a month was agreed to by 88.7% of the sample. Almost all

the sample, 95.3%, agreed that nursing homes should have sprinkler systems.

How Would People Behave in Fire Emergencies?

In order to assess how people would behave in fire emergencies, respondents were presented with three hypothetical fire emergency situations (scenarios) and asked what they would do if they were in such a situation. The respondents' responses were categorized by content. These content categories were rated on their appropriateness for the situation. The three scenarios and their most frequent responses are presented in Table 2.

The observed percentage agreements for the three content analyses was 89.7%, 97.8% and 93.3%. Scott (1955) presents an inter-coder agreement index for content analysis. The index adjusts the observed percentage agreement for the number of categories in the code and the frequency with which each is used. It can be roughly interpreted as the extent to which the coding reliability exceeds chance. The inter-coder agreement index values for the three content analyses were .839, .974, and .921.

Two raters then rated all the response categories from the content analyses on a four point scale from most optimal response for the situation to least optimal response for the situation. All discrepancies between the two raters were re-examined and discussed until the raters agreed how the category should be rated. The frequencies of the ratings appear in Table 3.

Appendix B consists of a table detailing which content analysis categories were assigned to which level of the four point rating scale. Appendix B also provides a breakdown of the "other categories" which

TABLE 2

Scenario 1

What would you do right now if your clothing caught on fire?

	<u>N</u>	<u>Percentage</u>
Roll self in/on floor or rug	92	60.9
Wrap self in something	21	13.9
Take off clothes	7	4.6
Other categories	31	20.5

Scenario 2

What would you do if you woke up at night, smelled smoke, and found that your bedroom door was shut, but hot when you touched it?

Go out window	62	41.1
Open door	29	19.2
Call fire department	22	14.6
Open window and call for help	8	5.3
Other categories	30	19.8

Scenario 3

What would you do if the grease in your frying pan caught on fire?

Put the lid on the pan	29	19.2
Put baking soda on it	28	18.5
Throw salt on it	18	11.9
Throw water on it	12	7.9
Smother it	11	7.3
Use fire extinguisher	9	6.0
Other categories	44	29.1

TABLE 3

Ratings of the Appropriateness of the
Responses for the Scenarios*

Scenario 1

<u>Appropriateness Rating</u>	<u>N</u>	<u>Percentage</u>
1 (Most optimal)	92	62.2
2	30	20.3
3	16	10.8
4 (Least optimal)	10	6.8

Scenario 2

1 (Most optimal)	102	69.9
2	5	3.4
3	10	6.8
4 (Least optimal)	29	19.9

Scenario 3

1 (Most optimal)	103	69.6
2	3	2.0
3	16	10.8
4 (Least optimal)	26	17.6

* The raters judged it meaningless to rate a few of the categories. As a result, the following number of cases are deleted from the three ratings 3, 5 and 3. The categories which were not rated can be gleaned from the table in Appendix B.

were combined in Table 2 for presentational clarity.

As can be seen in Table 2, the most frequent response to "what would you do right now if your clothing caught on fire?" was to roll oneself on the floor or rug. The next most frequent response was to wrap oneself in something. Thus, it appears that the majority of respondents report that they would respond in a life supporting fashion in the event that their clothes were on fire.

Scenario 2 was phrased, "What would you do if you woke up at night, smelled smoke, and found that your bedroom door was shut but hot when you touched it?". The most frequent response was to go out the window. Surprisingly, 19.2% of the sample said that they would open the door. This constituted the second most frequent response. Other factors besides the respondent's knowledge probably influenced the answers. For example, those respondents without a phone in their bedroom could not call the fire department and those whose apartment was several stories from the ground level would probably not exit the building from the window. Opening the hot door to the fire room, would expose the person to heat beyond the human tolerance level. Yet almost 20% of the sample reported that this would be their course of action. This clearly documents the need for increased fire safety training.

The most frequent responses to Scenario 3, "What would you do if the grease in your frying pan caught on fire?" were related to smothering the fire. Respondents, accounting for 19.2% of the sample, said to put the lid on the pan, 18.5% suggested using baking soda, 11.9% suggested using salt, and 7.3% said to smother it, but did not indicate how to do so. Any of the above responses would have been adequate. Twelve of the respondents or 7.9% said to throw water on it, which would be in-

appropriate. These findings also document the need for increased fire safety training.

It was hypothesized that the ratings of the respondents' responses to the three scenarios would covary with each other. That is, those who gave an appropriate or adequate response for one scenario was expected to give an appropriate or adequate response for the other scenarios. The ratings of the scenarios were not significantly related to one another using Pearson correlation coefficients. This seems to indicate that, for our sample, there is no general ability for reporting appropriate behavior in fire situations. In other words, knowledge of what to do in a fire appears to be situationally bound. This may indicate that people only learn and/or retain situationally specific knowledge about what to do in case of fire rather than concepts which they may generalize to many potential fire situations. Several one way analyses of variance were performed to examine any possible relationships between appropriateness ratings of scenario responses and the demographic variables of education, income, race, age, and sex. Although race and sex were nominal variables, they could be meaningfully represented as dichotomous variables, and according to some standards could be analyzed with analysis of variance. However the author judged that marital status could not be meaningfully dichotomized and therefore chi-square analyses were performed to examine any relationships between the scenario ratings and the demographic variable marital status. The analyses revealed no significant relationship between any of the scenario ratings and any of the demographic variables. It could be tentatively concluded that knowledge of appropriate behavior in fire emergencies, as measured by verbal responses to a hypothetical situation, is unrelated to any

demographic characteristics of the respondents.

How Do People View Their Preparedness for Fires?

Survey items were included to determine how people view their preparedness for fires. The three rating scales of fire preparedness are presented in Table 4. Approximately 27.2% of the sample rated themselves as knowing little or nothing about fire prevention. Most respondents (58.9%) said they knew a moderate amount about fire prevention, and 13.2% said they knew a great deal.

Respondents who reported that they would be very or slightly unsure about what to do if a fire broke out in their home comprised 17.3% of the sample. The majority of the respondents (64.0%) said they would be fairly sure and 18.7% said they would be very sure about what to do in the event of a household fire.

Of those who rated their household on its preparation for a fire, 45.3% considered their household to be not prepared or somewhat prepared for a fire. Those who rated their household as moderately prepared for a fire accounted for 33.1% of the respondents, and 21.6% rated their household as very prepared or as prepared as possible.

Chi-square analyses were performed to assess if the respondents' three ratings of fire preparedness were related to any demographic characteristics.

Two of the three ratings were significantly related to the respondents' race. These ratings were respondents ratings of their knowledge of fire prevention and their rating of their household fire preparation. These tables and chi-square values are presented in Tables 5 and 6. As can be seen in Table 5, the non-white respondents are equally distributed across the self-rating. Table 6 shows the distribution of

TABLE 4

Frequencies for Rating Scales of Fire Preparedness

Question:

Now I'd like you to rate yourself on how much you think you know about fire prevention. Would you say (1) you know nothing about fire prevention; (2) a little about fire prevention; (3) a moderate amount about fire prevention; (4) a great deal about fire prevention; or (5) do you know everything about fire prevention.

	<u>N</u>	<u>Percentage</u>
Nothing	4	2.6
Little	37	24.5
Moderate	89	58.9
Great deal	20	13.2
Everything	1	0.7

Question:

Now I'd like you to rate yourself on how much you think you know about what to do if a fire broke out in your home. Would you say (1) very unsure about what to do; (2) slightly unsure about what to do; (3) fairly sure about what to do; or (4) very sure about what to do.

	<u>N</u>	<u>Percentage</u>
Very unsure	4	2.7
Slightly unsure	22	14.7
Fairly sure	96	64.0
Very sure	28	18.7

Question:

How well would you say your household is prepared for a fire? Would you say that (1) your household is not prepared for a fire at all; (2) is somewhat prepared; (3) is moderately prepared; (4) is very well prepared; or (5) is prepared as well as possible for a fire.

	<u>N</u>	<u>Percentage</u>
Not prepared	26	17.6
Somewhat	41	27.7
Moderately	49	33.1
Very	12	8.1
Prepared as possible	20	13.5

TABLE 5

Respondents Self-Ratings of Knowledge of
Fire Prevention by Race

	<u>Race</u>	
	Caucasian	Non-Caucasian
Know little or nothing about fire prevention	31	10
Know a moderate amount about fire prevention	77	10
Know a great deal or everything about fire prevention	12	9

Note: Chi-square = 11.49 with 2 df, p = .003

TABLE 6

Respondents Self-Ratings of Their Household's
Fire Protection by Race

	<u>Race</u>	
	Caucasian	Non-Caucasian
Not prepared at all	22	4
Somewhat prepared	31	10
Moderately prepared	45	3
Very prepared or as prepared as possible	19	12

Note: Chi-square = 13.36 with 3 df, p = .004

the respondents' ratings of their household's fire preparation by race of the respondent. Non-caucasians are more likely than caucasians to describe themselves as very knowledgeable or prepared. The author concludes that race seems to have some relationship on the two self ratings of fire preparedness, although it is difficult to interpret what the relationship means.

The respondents' ratings of their household fire preparedness was also related to the marital status of the respondent. A chi-square analysis yielded significance, $\chi^2 = 23.66$, $df = 6$, $p < .0006$, but the table proved very difficult to interpret. A one way analysis of variance was then performed using marital status as the independent variable. The analysis was significant, $F = 2.87$, $df = (3,140)$, $p < .04$. A Student-Newman-Keuls posteriori contrast revealed that the married respondents were significantly more likely to judge their household as prepared for a fire than were single respondents. Widowed or divorced respondents were not significantly different in rated household preparedness than either married or single members of the sample.

The respondents' self-ratings of fire preparedness were compared to the respondents scenario ratings using chi-square analyses. The respondents who gave the most optimal responses on a scenario were contrasted with those who gave less optimal responses. All proved nonsignificant with the exception of scenario rating 2 (fire outside bedroom door) compared with the rating of household preparation. Those who gave an optimal response to the scenario tended to give their household a higher rating on fire preparedness. The table and chi-square value are presented in Table 7. It should be noted that given the large number of analyses performed, some should be significant solely by chance. On the

TABLE 7

Respondents Rating of Household Preparation
By Scenario Rating Two

Scenario 2

	Not Prepared	Somewhat Prepared	Moderately Prepared	Very Well Prepared
Most Optimal	12	26	37	25
Less Optimal	13	12	11	7

Note: Chi-square = 7.95 with 3 df, $p < .047$

basis of this, one would conclude that ratings of fire knowledge and preparation are unrelated to knowledge of appropriate action in a fire emergency.

What Fire Hardware Do These Respondents Have?

Information concerning alarm systems and fire extinguishers was collected from the respondents. The format of these questions was not the same for the single dwelling unit building respondents as it was for the multiple dwelling unit building respondents, since for the multiple dwelling respondents the fire hardware could be found either in their own apartment or in the public areas of their building.

For the single dwelling unit respondents, the fire alarm question was phrased as follows: "An alarm system can be made up of heat sensors, smoke detectors, a sprinkler system, an alarm, or any combination of these devices. Do you have any fire alarm systems like this in your house?" Seven of the 73 respondents, or 9.6%, responded that they had one or more of these devices. Forty-three of the seventy three respondents, or 58.9%, stated that they had one or more fire extinguishers in their home.

For the respondents who lived in multiple dwelling unit buildings, the same description of a fire alarm system was given. They were then asked the following: "In the public areas of your building, like the hallways, the stairways, the laundry room or the basement, is there a fire alarm system?" Five (6.8%) responded in the affirmative, 55 (75.3%) said no and 13 (17.8%) didn't know. Fire extinguishers in the public areas of the building were reported by 17 (23.3%). Forty eight (65.5%) reported that there were no fire extinguishers in the public areas and 8 (10.3%) did not know.

When asked about their own apartment, 4 (5.4%) reported having a fire alarm system in the apartment itself, while 69 (93.2%) said they did not have any alarm device and one respondent did not know. Fire extinguishers in the respondents' own apartment were reported by 16 (21.3%) of the respondents. Fifty-eight (77.3%) reported not having an extinguisher and one respondent did not know.

Are Respondents' Fears of Fire Reflected in Estimates of the Community Fire Problem?

The author attempted to measure the respondents' fear of fire with the following item: "The thought of my being in a fire is very disturbing." The respondents stated their degree of agreement with the statement using a 4-point Likert scale with response choices of strongly agree, somewhat agree, somewhat disagree or strongly disagree. It was hypothesized that the respondents' fear of fire would be reflected in their estimates of the number of building fires in their community and the number of deaths due to fire.

Two Pearson correlation coefficients were computed to test this hypothesis. Neither correlation was significant. It was concluded that fear of fire is not related to estimates of the number of fires and fire deaths or alternatively the measure of fear of fire was not adequate.

Where Do People Learn About Fire Safety?

Respondents were questioned as to where they learned about fire safety. Television was reported as a source of fire safety by 14.5% of the sample. Those respondents who reported learning about fire safety by reading comprised 37.1% of the sample and 25.8% reported that their work was a source of their fire safety knowledge. Almost all the sample (96.0%) reported that school was a source of fire safety knowledge.

Chi-square analyses were performed to examine the relationship between the ratings of the scenarios and the respondents sources of fire safety knowledge. Since almost all the respondents listed school as a source of knowledge, its relationship with the ratings was omitted. No significant relationships were found for the ratings of the scenarios with work, television and reading as sources of knowledge.

As well, the respondents' reported sources of fire safety knowledge were examined using χ^2 analyses to see if they were related to any demographic characteristics. The demographic variables were education, age, marital status, income, race and sex. It was found that learning about fire safety from television and reading was related to the respondent's age. These results are presented in Table 8. Older respondent's tended not to have learned about fire safety from these sources. All other analyses were not significant.

The respondents' reports of learning fire safety from television, reading and work were also examined to see if they related to the respondent's three ratings of fire preparedness. Chi-square analyses were computed and no significant findings were obtained.

What Has Been Learned?

The results of a survey of fire preparedness administered to a random sample of residents in a midwestern city have been presented. To summarize, no multidimensional structure was uncovered in the respondents' attitudes toward fires. It was discovered that most respondents felt that household fires can be attributed to human carelessness. This is in accordance with the finding of Melinek et. al. (1973). Other findings reveal that most respondents believed that they could act to prevent fires in their homes. As well, most respondents report favorable atti-

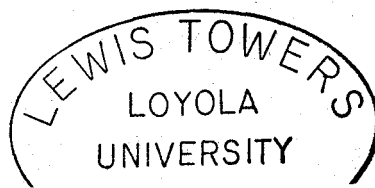


TABLE 8

Sources of Fire Knowledge by Age

<u>Television</u>	<u>Age</u>		
	Under 30	30 to 50	Over 50
Not learn fire safety from television	34	37	58
Learned fire safety from television	6	12	4

Chi-square = 7.16, df = 2, p < .028.

<u>Read</u>	<u>Age</u>		
	Under 30	30 to 50	Over 50
Not learn fire safety from reading	21	28	46
Learn fire safety from reading	19	21	16

Chi-square = 5.94, df = 2, p < .051.

tudes toward training. These findings would suggest that there is strong public support for fire safety training.

While respondents report favorable attitudes toward training and prevention, a significant number show a lack of knowledge of appropriate behavior in fire emergencies as measured by responses to scenarios. Almost 20% said they would open the hot door of a room which was aflame. As well, about 8% said they would throw water on a grease fire. While an analysis of the attitudinal items shows support for fire safety training, an analysis of the scenarios documents the need for such training. In addition, the respondents' ratings of fire knowledge and preparedness were unrelated to the appropriateness of their responses to the scenarios. Indeed, the appropriateness of the response to any one scenario was unrelated to the appropriateness of the response for either of the other scenarios. In other words, those respondents who gave a correct response to one scenario may or may not have given a correct response to another scenario, that is scenario ratings did not covary. This seems to indicate that fire safety knowledge for respondents in this sample may be situationally bound. This point should be kept in mind when designing or assessing the impact of fire education programs.

An analysis of respondent's reports of their fire safety hardware reveals that almost 60% of single dwelling units contain fire extinguishers while multiple dwelling units report many fewer fire extinguishers. This is similar to findings by Crossman and Wirth (1975) who note the lack of fire organization in high-rise apartment buildings.

Based on the experience of the investigation, a review of the literature, and the data presented in this report, several areas of future research can be suggested. Attitude and opinion surveys can be

utilized to assess the extent of public support for fire safety programs. Surveys can also be used to assess people's knowledge of fire safety practices. It would be interesting to replicate the finding that aspects of fire safety knowledge fail to covary with each other, as was found with the scenarios. Several fire safety knowledge items could be administered and analyzed to assess what fire safety knowledge topics clustered together. If clusters were discovered, they would provide an empirical basis for selecting fire safety topics for training efforts. As well it would be useful to utilize survey responses to develop predictive instruments measuring fire preparedness based on observational or behavioral criteria. One could then arrive at an estimate of a household's fire preparedness via a phone call in lieu of a physical inspection of the occupancy.

Are People Who Have Experienced Fires Different From Those Who Have Not?

Several analyses were undertaken to examine if respondent's from the fire sample gave different responses to survey items than respondent's from the random sample. No hypotheses were generated but a number of potential differences were examined.

Several one way analysis of variance tests were conducted to search for differences between the groups of respondents. The dependent measures in these analyses were 19 attitudinal variables, three ratings of scenario responses, three self ratings of fire preparedness, and estimates of the number of building fires in the respondent's community, an estimate of the number of deaths due to fire in the community, the age, education, income of the respondent and the respondent's length of residence at his current address. With the exception of age and length of

residence, all of the above mentioned variables were ordinal scale measurements. The variables age and length of residence were ratio scale measurements. In addition dichotomous dependent measures were also used. Whether or not the respondent had learned fire safety from television, work, school or reading constituted four of the dichotomous dependent variables. The respondent's race, sex and employment status were three additional dichotomous variables. Whether the respondent had lived in Evanston before his/her current residence was also a variable. If the respondent desired a home fire safety check and whether or not the respondent gave his/her name and address so as to receive fire safety literature were treated as two additional dichotomous variables.

Respondents in single dwelling unit buildings were asked if they had a fire alarm system or fire extinguishers in their home. These two dichotomous variables served as additional dependent variables for the respondents in single dwelling unit buildings.

Respondents in multiple dwelling unit buildings were also asked about a fire alarm system and fire extinguishers in both their own dwelling unit and in the public areas of the building. These items served as four dichotomous dependent variables for the respondents in multiple dwelling unit buildings. Of the several analyses performed, only five proved statistically significant. Given that one would expect several to be significant by chance, the author concluded that there are no apparent differences between the fire victims and the random sample of household respondents on the variables measured.

These lack of findings suggest to the investigator a post hoc hypothesis. Although many fires are resultant from human carelessness, their outbreak could be considered as an essentially random event. Thus, while many people may be careless about smoking in bed, only some of

these careless actions result in fires. It could be argued that since fires approximate random occurrences, one would not expect victims of fires to be any different from those who have not experienced fires.

Do People Who Have Had Fires Report Them to a Phone Interviewer?

Respondents to the survey, after being screened for eligibility, were asked if they had experienced a fire in their household or apartment from September 1, 1975 through August 31, 1976. Fires were defined as "incidents where there was an unplanned fire which produced visible flames or quantities of smoke, regardless of whether you called the fire department and regardless of whether the fire was large or small." Of the phone numbers included in the fire sample, 42 interviews were obtained. Of these 42 respondents, all of whom purportedly had fires according to fire department records, only 16 told the interviewer they had a fire which was reported to the fire department. Thus, of the 42 fire cases, 26 of the respondents said they did not have a fire.

This finding caused the investigator to suspect that something was amiss. It was expected that only a few of the fire sample respondents would fail to report the fire to the interviewer. Given that 26 of the 42 cases failed to report the fire, it was suspected that at least some of these 26 cases did not really have a fire. To investigate this assumption, several sources of data were examined. The names, addresses and phone numbers listed in the fire records were compared with the names, addresses and phone numbers on the surveys. In addition, the phone numbers of all the 26 cases were given to a reverse directory service which provided the name and address of the phone number's owner. On the basis of this information, it was judged that 10 of the 26 cases did not have a fire. For most of the cases, it appeared that the phone number dialed

by the phone interviewer did not belong to the fire victim of record. It was not always clear why this was the case. For two of the discrepancies, it appeared that the phone interviewer had misdialed. As stated earlier, if the records did not list the fire victim's phone number, efforts were made to obtain the phone number from directory assistance. An examination of the fire record name and address information and similar information from the survey, led the researchers to conclude that some of the phone numbers received from directory assistance did not belong to the fire victim. The remaining cases had called the fire department, but on closer examination of their records, it appeared that the "fire call" was for a non-fire related incident such as a gas leak. This case deletion reduced the true number of fire cases to 32, of which 16 respondents reported having a fire and 16 respondents did not report the fire to the phone interviewer.

Why Do Some Fire Victims Report the Fire and Others Not?

The original intention of the study was to compare the respondent's recall of the fire incident as reported on the survey, with the fire department records. However, given that half of the sample of known fire victims did not report the fire, an additional objective of the study became to ascertain why some respondents reported the fire to the interviewer and others did not.

Two hypotheses were postulated. First, it was hypothesized that those fires which were later in the reference period (i.e., closer to the time of the survey) would be more likely to be recalled and reported to the interviewer. This hypothesis suggested itself based on forgetting curves, noted by Crossman, and also detailed in crime victimization studies. The second hypothesis was that serious fires would be more

likely to be recalled than less serious fires.

To test Hypothesis 1 the months in the reference period were assigned values from 1 to 12. The first month in the reference period, September 1975, was assigned the value of 1. The second month in the reference period, October 1975, was assigned the value of 2 and so on. Each month in the reference period was thus assigned a number corresponding to its position in the reference period.

A Pearson correlation coefficient was then computed between whether the fire was reported to the interviewer and the position of the month in the reference period. The relationship was tested using a one-tailed test which is normally used when the researcher has explicit expectations about the direction of the relationship (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975). Although the observed relationship was in the expected direction, the Pearson correlation coefficient did not reach the traditional level of significance, $r = -.2826$, $df = 30$, $p = .059$.

This analysis suffered from low statistical power. Given that the true population correlation coefficient between reporting the fire to the interviewer and the position of the month in the reference period was $r = .30$, the probability of finding the true effect with a sample size of 32 was well below 50-50. Thus, if there is an effect, the analysis would probably not find it. The investigator suggests that the hypothesis be tested in a larger sample to allow for a more powerful test. Table 9 is provided to illustrate the direction of the relationship.

Hypothesis 2 states that serious fires are more likely to be recalled and thus reported more often than less serious fires. This hypothesis can be tested in several ways through multiple measures of

TABLE 9
Reporting of Fire by Segment of Reporting Period

	1st 6 month period (September 1975-February 1976)	2nd 6 month period (March 1976-August 1976)
Report	9	7
Not Report	13	3

fire severity.

The length of time that the fire department was at the scene of the fire could be considered as an index of the fire's severity. However, the fire records did not provide this information. Rather, the records presented the number of minutes each fire vehicle was at the scene, but no information when each vehicle arrived or left. Two indices of fire severity were derived from this information. The first was the sum of all the time spent at the fire scene by each fire vehicle. The second index was the time spent at the fire scene by the fire vehicle which remained the longest time at the scene of the fire.

One way analysis of variances were performed, treating each of the indices as the dependent variable. The independent variable was the fire group to which the case belonged. The term "fire group" refers to whether the respondent reported the fire or did not report the fire.

Both analyses were significant. Table 10 presents the means of the fire severity indices for the fire reporters and the fire non-reporters. The analysis, which used as the dependent variable the sum of the minutes at the fire scene of all the fire vehicles, yielded an F value of 5.14, df (1,30) significant at $p < .03$. The second analysis, which used as the dependent variable the number of minutes at the fire scene of the vehicle which stayed the longest, yielded an F value of 5.52, df (1,30), significant at $p < .03$. In both analyses the difference between the groups was in the expected direction with the fire reporters having fires at which the fire department spent more time.

Other measures of fire severity also exist in the fire records but they are all dichotomous categorical measures. They included whether or not water hoses were used at the fire, anyone was injured, anyone was

TABLE 10

Means of Fire Severity Indices
Average Sum of the Time Fire Vehicles
Are at the Scene of the Fire

Fire Reporters	164.69 minutes
Fire Non-Reporters	45.81 minutes

Average Time at the Scene of the Fire
of Vehicle Which Stayed the Longest

Fire Reporters	55.81 minutes
Fire Non-Reporters	19.88 minutes

rescued, whether the fire was confined to the floor on which it originated, and so on. These variables, however, are all highly skewed. For example, at almost all the fires, the fire department did not use water hoses. As well, in almost all the fires, no one was injured. Given the skewed nature of the variables and the small sample size, such analyses were not performed as they could give misleading results.

Chi-square analyses were performed on two contingency tables for the variables fire group and answers to the question "was anything damaged?" Although fewer of those who did report the fire had damage than not, the report group was equally divided on the damage variable. The chi-square value was not significant. The cross tabulation table is presented in Table 11.

From the results of these four analyses of the fire severity, the author concluded that hypothesis two is confirmed. It appears that the more serious fires were more likely to be reported.

Are Fire Reporters Different From Fire Non-Reporters?

The two fire groups were then compared across several survey variables using one-way analysis of variance. Given the large number of analyses performed, it can be expected that several statistically significant relationships would be found by chance. However, since no other data exists which compares those who report fires on surveys with those who do not and given that this study is primarily exploratory in nature, it was judged appropriate to examine several variables while cautioning the reader about the potential for spurious findings.

Of the analyses performed on the 19 attitudinal variables, one analysis proved significant. The respondent was read the statement, "Most people will panic in a fire." Interviewers instructed the respon-

TABLE 11
Fire Groups by Frequency of Reported Damage

	Damage	No Damage
Reported	8	8
Not Reported	5	9

Note: Chi-square = 0.6, not significant

dents to give their opinion concerning the statement by giving one of four responses, these being strongly agree, somewhat agree, somewhat disagree, and strongly disagree. Using this variable as the dependent variable, a F value of 8.26 significant at $p < .007$ was obtained. Most people disagreed, however, the fire reporters tended to disagree with the statement more strongly than the fire non-reporters.

Three rating scales of fire preparedness were also presented to the respondents. One scale requested the respondents to rate themselves on how much they think they know about what to do if a fire broke out in their home. Using this rating scale as a dependent variable, an F value of 4.83, df (1,29), $p < .036$ was achieved. The fire reporters rated themselves significantly more sure about what to do in case of a fire than did the fire non-reporters.

The respondents were also presented with three hypothetical fire emergency situations (scenarios) and asked what they would do in such a situation. Their responses were subjected to a content analysis and the resulting categories were rated for their appropriateness. These rating scales of the respondents' knowledge served as dependent variables in three one way analyses of variance. One of these ratings yielded a F value of 5.10, df (1,30) significant at $p < .03$. The scenario read, "What would you do right now if your frying pan caught on fire?" The fire reporters gave significantly better responses than the fire non-reporters.

Two other variables related to the respondents' residential history also yielded significant results. These variables were the respondents' reported length of stay at their current address and where the respondent had lived before their present address. The length of stay

variable yielded an F value of 5.3, df (1,29), $p < .03$. The fire reporters had lived at their current address on the average of 7.9 years while the fire non-reporters had an average length of stay of 17.4 years.

The variable concerned with where the respondent had lived before their present address had two possible values, these being within the city limits and elsewhere. An F value of 12.03, df (1,28), $p < .001$ was obtained. The fire reporters had tended to live outside of the city limits before living at their current address, while the fire non-reporters tended to have lived in the city previously.

There were no other F values significant at the .05 significance level. The author has previously cautioned the reader that some of the statistically significant findings may be spurious. However, another consideration should be taken into account. The sample size of each of the groups was only 16. A small sample size means that these analyses lack power to detect small differences. This matter is discussed because three of the analyses involving demographic variables yielded F values which approached significance. These variables were education, age and race, and their respective alpha levels were $p < .06$, $p < .07$, and $p < .07$. These analyses suggested that fire reporters were more educated, younger and more likely to be caucasian than the fire non-reporters.

In summary, several differences were found between the fire victims who reported the fire to the interviewer and those that did not. Serious fires were more likely to be reported than less serious fires. The fire victim's residential history also has an impact on the reporting of a fire to the interviewer. It appears that long time residents of the community were less likely to report their fire experience to

the phone interviewer. Given the limitations of this study, it is important that these results be replicated before firm conclusions are drawn. Future studies should be sure to include the demographic variables education, age and race in their designs.

Do Fire Victims Who Report the Fires Give Accurate Responses?

Of the 32 cases in the fire sample, 16 reported the fire to the phone interviewer. It is thus possible to compare the respondents' survey responses for several items related to the fire incident with data concerning the fire in the fire department records. This is an important aspect of this study as there have been numerous studies documenting the inaccuracies of interview responses. Various reasons for the inaccuracies have been noted including memory lapses, motives to give socially acceptable responses, and acquiescence response sets. Thus, if accurate information about fire incidents is to be obtained, an analysis of the type and extent of any inaccuracies in reporting is critical. One major assumption in such a reverse record check is that the criteria source, in this case the fire records, are accurate. Any discrepancies between the records and the interview responses are attributed to the respondent's inaccuracies.

One survey response which can be compared to the fire records is the date of the fire. The phone interviewers were instructed to collect both the month and the date of the fire. If the respondent gave only the month, the respondent was asked for the exact date if it was known. The date of the fire was missing on the survey for two of the respondents. Of the remaining 14 cases, only 5 of the 14 cases could give the day of the month. Table 12 presents the month of the occurrence by the month reported in the survey. As can be seen from the table, only

TABLE 12

Fire Incidents by Month of Occurrence by Month Reported in Survey

Reported in Interview

	Total	Sept 1975	Oct 1975	Nov 1975	Dec 1975	Jan 1976	Feb 1976	Mar 1976	Apr 1976	May 1976	Jun 1976	Jul 1976	Aug 1976	Month not Available	Not Reported in Interview
Total	32	1	1	2	2	2	0	2	0	0	0	3	1	2	16
Sept 1975	0														2
Oct 1975	2	1	1												3
Nov 1975	1			1											4
Dec 1975	2				1	1									
Jan 1976	4			1	1	1								1	1
Feb 1976	0														3
Mar 1976	2							1					1		1
Apr 1976	1													1	
May 1976	0														1
Jun 1976	2							1				1			
Jul 1976	2											2			
Aug 1976	0														1

Reported to Fire Department

7 of the 14 cases gave the correct month of the fire. It should be remembered that all of these fires were reported to the fire department, yet half the respondents could not state the correct month of the fire.

Survey respondents were also asked what time of day the fire began. While the fire records do not state the time the fire began, they do contain the time the fire alarm was received. Two of the 16 cases had missing data on this variable. An analysis was performed to see the frequencies that the survey respondents' reported time the fire began was within one hour of the time the fire records received the alarm. For example, if the fire department records listed the fire alarm received at 12:52 a.m., any time of fire discovery between 11:52 p.m. and 1:52 a.m. was judged as an accurate reporting of the time the fire began. Ten of the 14 cases, or 71.4% reported a fire discovery time within 60 minutes of the time the fire alarm was received.

Another item for which there existed fire record validity information was the floor on which the fire began. In 13 of the 16 cases, or 81%, the survey and the fire records agreed.

Survey respondents were also asked if the fire was confined to the floor on which it began. This information was coded as missing data for one case. Of the remaining 15 cases, 13, or 86.7%, were in agreement with the fire department records. In both cases where there was disagreement, the survey respondents' reported that the fire was not confined to the floor, when the fire department considered the fire confined. The authors speculate that the discrepancy may be due to differences in the definition of a confined fire. While the fire may have been confined to one floor, a respondent might respond that it was not confined if other floors were damaged by smoke.

Concerning whether the fire was confined to the building, the respondents and the records were in complete agreement for all 16 cases. As to whether anything was damaged, 13 of the 16 respondents agreed with the fire department records. In two of the three discrepancies, the survey recorded damage while the fire records did not.

Fourteen of the 16 respondents agreed with fire records concerning the existence of injuries stemming from the fire. In both discrepancies, the fire records recorded instances of injury while the survey did not. The authors speculate that the non-reporting of injury might be related to embarrassment of the respondents.

Concerning agreement about fire department personnel giving first aid, all survey respondents agreed with the records that no one received first aid. Survey respondents were asked about what fire equipment was used, if any, at the fire scene. Specifically, they were asked if the fire department used fire hoses at the scene of the fire and if they used fire extinguishers at the scene of the fire. Of the 15 valid cases for the water hose item, 14 agreed with fire records. Of the 13 valid cases for the extinguisher item, 9 agreed with the fire records. Some of these discrepancies may be the result of poorly phrased survey items. The fire department frequently used water hand pumps. Since the survey did not mention water hand pumps, it is possible that the respondents considered the water hand pumps to be equivalent to either water hoses or extinguishers. The direction of the errors support this hypothesis. All errors for both comparisons involved the respondents' stating that the fire hardware had been used while the records indicated that it had not been employed.

A final comparison was possible between records and the survey

responses concerning rescue. Of the 16 valid cases, 15 of the survey responses agreed with the records.

Given that the analyses involved only 16 cases, and the statistics were limited to tabulation of percentages, only tentative conclusions can be drawn. It appears that only half of the respondents can accurately give the month of the fire incident. For all other variables it appears that respondents usually agreed with the fire records, although complete agreement was seldom found. It is concluded that fire victims who report the experience to the interviewer generally give accurate responses.

Before drawing further conclusions from this study, several points which may limit the generalization of the results to other fire incident surveys, such as the one sponsored by the NFPCA, deserve mention.

The study was under the sponsorship of Loyola University of Chicago. Thus, surveys under different sponsorships may yield different results. A second point is that the fire reference period was not the 12 months directly preceding the interview time. The surveys were conducted during a three week period in November 1976, while the reference period ended on August 31, 1976. It should also be noted that the item concerning whether a fire occurred during the reference period was very early in the survey. This item was placed early in the survey in an attempt to interview a member of the fire victimized household who was home at the time of the fire. If the respondent with whom the interviewer was speaking was not at home during the fire incident, but a household resident who was at home at the time of the fire was available to be interviewed, the interviewer was instructed to interview that person instead. With this procedure the interview is conducted with the resi-

dent who had the most contact with the fire. Unfortunately this procedure might have biased the interviewee's response at that point as adequate trust and rapport with the interviewer might not have been established at that point. This point seems important because many interviewers noted that some respondents questioned the purpose of the survey in that they thought we were trying to sell fire alarm systems. And of course, given the small sample size and the larger number of analyses, the findings are in strong need of replication.

A major limitation of our findings stems from biases associated with this sample. The sample did not include all those households in the community during a one year period. In order to perform a reverse record check, the sample needed to be limited to fires reported to the fire department. Based on previous studies, this procedure eliminated more than 70% of the cases in the population. Of the fires reported to the fire department, only some of the fire victims' phone numbers could be obtained. Although it is difficult to determine why some phone numbers were available and others not it does not seem likely that it is a random occurrence. Some form of self-selecting subject bias may have been operating at that stage of sample selection. A final source of sampling bias was that all phone numbers called did not yield an interview. Some potential respondents were not reached, others refused to grant an interview. It is not feasible to assess how these sample selection restrictions limit the generalizations of the result, however, it seems likely that they had some impact.

To conclude, it appears that fires which are less serious are less likely to be reported on the survey. For those fires which were reported, it appears that the responses to items concerning the fire incident

are usually valid, although complete agreement between survey responses and official records are seldom found.

From the experience of working with data and from reviewing studies of non-sampling error in crime surveys, several future studies seem worthwhile. It would be prudent to analyze non-sampling error in fire surveys using varying reference periods such as three months or six months. As well it would be interesting to explore if respondents who were home at the time of the fire gave different responses than those who were not. Another possibility is to provide a sample of householders incentives to keep daily logs of fires, accidents and "near misses" to fires or accidents. Such "near misses" will have a greater frequency than actual fires or accidents, and thus will provide a larger sample of events to be studied.

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APPENDIX A

FULL SURVEY

Interview number _____

Interviewer _____

Phone number _____

Fire Sample 1()

Random Sample 2()

Hello, my name is _____. I am part of a research team at Loyola University. We are working with the City of Evanston on a project concerning citizen opinions and experience with fire safety. Today we are interviewing randomly selected Evanston residents. It will take about 15 minutes and will be completely anonymous.

(IF THE RESPONDENT SAYS HE/SHE IS TOO BUSY, SAY:)

Once you are selected for the sample, it is important that I get your opinion. When would be a more convenient time for me to call back?

1. Is this a household or is this a business? (NO DORMATORIES, SORORITIES, FRATERNITIES OR INSTITUTIONAL RESIDENCES)

(1)___household (2)___business (3)___student housing

(4)___institutional

(IF BUSINESS:)

I'm sorry, we are only interviewing households. Thank you. Good bye.

2. Are you a permanent resident of this household?

(1)___yes (2)___no

3. Are you over 18?

(1)___yes (2)___no

(IF NO:)

Is there anyone at home who is over 18? May I speak with him/her. When would be a good time to call back to speak with someone over 18?

We are interested if you have had a fire in your household or apartment during the last year from September 1, 1975 to August 31, 1976. We are looking for incidents where there was an unplanned fire which produced visible flames or quantities of smoke, regardless of whether you called the fire department, and regardless of whether the fire was large or small.

4. Have you had a fire in your house or apartment building during that time?

(1) yes (2) no

(IF NO, GO TO ITEM 7).

5. Were you in the building at the time of the fire?

(1) yes (2) no

(IF YES, GO TO ITEM 7).

(IF NO, GO TO ITEM 6).

6. Is there anyone in your household now who was in the building at the time of the fire and is over 18?

(1) yes (2) no

(IF NO: GO ON TO QUESTION #7).

(IF YES:)

May I speak with that person for a few minutes?

Hello, my name is _____. I am part of a research team at Loyola University. We are working with the City of Evanston on a project concerning citizens' experience with fires. I understand that you were in your building during a fire a while ago. I would like to ask you some questions? I was told that you were in the building when you had a fire recently, that is, between September 1, 1975 and August 31, 1976. Is that the case?

Yes ___ No ___

7. How long have you lived at your current address? _____

8. Where did you live before here? Did you live in Evanston or somewhere else?

(1) inside city limits of Evanston

(2) somewhere else

9. Is your home owned/being bought by you or is it rented?
- (1) owned or being bought
(2) rented
(3) no cash rent
10. Does your building have only one dwelling unit or do you live in an apartment building or condominium?
- (1) single dwelling (2) multiple dwelling
- (FOR SINGLE DWELLING UNITS ONLY)
11. How many floors are in your building, not including the basement?
- _____
- (FOR MULTIPLE DWELLING UNITS ONLY)
12. How many apartments are in your building? _____
- (IF THE RESPONDENT CANNOT GIVE THE EXACT NUMBER ASK FOR AN ESTIMATE)
13. The above figure is: (1) exact (2) estimate
14. How many floors are in your building, not including the basement?
- _____

Now I'm going to read you a list of statements. For every statement you should answer in one of four ways. Your four choices are: strongly agree, somewhat agree, somewhat disagree and strongly disagree. So for every statement I read, I would like you to tell me if you strongly agree with the statement, somewhat agree with the statement, somewhat disagree with the statement or strongly disagree with the statement. The first statement is:

15. Most household fires are caused by the careless actions of people.

strongly agree somewhat agree somewhat disagree strongly disagree

16. There is little I can do to prevent a fire in my home.

str. a. some. a. some. d. str. d.

17. The chances of my being in a fire in the future are slim.

str. a. some. a. some. d. str. d.

18. It is best to open the windows in a room containing a fire to keep the smoke from filling the hallway.

str. a. some. a. some. d. str. d.

19. The thought of my being in a fire is very disturbing.

str. a. some. a. some. d. str. d.

20. Teaching children fire safety in school is a waste of time.

str. a. some. a. some. d. str. d.

21. Houses should be build to be fire proof regardless of cost.

str. a. some. a. some. d. str. d.

22. Most people who die in fires are killed by the smoke, gases, or lack of oxygen, and not by the flames.

str. a. some. a. some. d. str. d.

23. Training people on what to do in case of fire could greatly reduce the number of deaths due to fire.

str. a. some. a. some. d. str. d.

24. Fires occur so infrequently that one needn't concern oneself with fire prevention.

str. a. some. a. some. d. str. d.

25. Almost all household fires are reported to the fire department.
strongly agree somewhat agree somewhat disagree strongly disagree
26. Educating the public about fire prevention will not do much to reduce the number of fires.
str. a. some. a. some. d. str. d.
27. Most people will panic in a fire.
str. a. some. a. some. d. str. d.
28. There should be a law requiring all households to have fire alarm systems.
str. a. some. a. some. d. str. d.
29. Most people will be in a serious fire at sometime in their life.
str. a. some. a. some. d. str. d.
30. Nursing homes should be inspected by the fire department at least once a month.
str. a. some. a. some. d. str. d.
31. All nursing homes should have sprinkler systems regardless of cost.
str. a. some. a. some. d. str. d.
32. Fire fighters should spend time doing fire prevention work such as home inspections.
str. a. some. a. some. d. str. d.
33. Fire fighters usually cause more damage putting out the fire than the fire would have caused if left alone.
str. a. some. a. some. d. str. d.

Now we would like to ask you some questions about the incidence of fires in the Evanston area. We don't expect you to know all the answers but we would like you to at least take a guess on all the items.

34. How many civilians were killed by fire in Evanston during 1975? Would you say 0 were killed, 1 to 5 were killed, 6 to 10 were killed, 11 to 15 were killed, or more than 15 were killed?

(1)___0 (2)___1-5 (3)___6-10 (4)___11-15 (5)___more than
15

35. How many building fires were reported in Evanston during 1975? Would you say there were 100 or less, 101-200 fires, 201-300 fires, 301-400 fires, or more than 400 fires?

(1)___100 or less (2)___101-200 (3)___201-300 (4)___301-400
(5)___more than 400

Now I'm going to read you some possible situations you might be in someday and I'd like to know what you think you would do if you were in such a situation. Please give me the first thing that comes into your mind. The first situation is:

36. What would you do right now if your clothing caught on fire?

37. What would you do if you woke up at night, smelled smoke, and found that your bedroom door was shut, but hot when you touched it?

38. What would you do if the grease in your frying pan caught on fire?

39. Now I'd like you to rate yourself on how much you think you know about fire prevention. Would you say (1) you know nothing about fire prevention, (2) a little about fire prevention, (3) a moderate amount about fire prevention, (4) a great deal about fire prevention, or (5) do you know everything about fire prevention?

(1)___nothing (2)___little (3)___moderate (4)___great deal
(5)___everything

40. Now I'd like you to rate yourself on how much you think you know about what to do if a fire broke out in your home. Would you say that you would be (1) very unsure about what to do, (2) slightly unsure about what to do, (3) fairly sure about what to do, or (4) very sure about what to do.

(1)___very unsure (2)___slightly unsure (3)___fairly sure
(4)___very sure

41. Where did you learn about fire safety? Did you learn about fire safety:

___on T.V. ___at work ___by reading ___in school

(CHECK AS MANY AS APPLICABLE)

42. Can you tell me when national fire prevention week is?

_____ don't know

(GET MONTH AND DATES IF RESPONDENT KNOWS)

43. Have you ever been in a major fire in your life?

(1)___yes (2)___no

INTERVIEW NUMBER _____

(FOR SINGLE DWELLING UNITS ONLY)

Now I would like to ask you about fire alarm systems.

44. An alarm system can be made up of heat sensors, smoke detectors, a sprinkler system, an alarm or any combination of these devices. Do you have any fire alarm systems like this in your house?

(1)___yes (2)___no (3)___don't know

(IF NO OR DON'T KNOW, GO TO ITEM 49)

45. Does it contain:

<input type="checkbox"/> a heat sensor	<input type="checkbox"/> don't know
<input type="checkbox"/> a smoke detector	<input type="checkbox"/> don't know
<input type="checkbox"/> a sprinkler system	<input type="checkbox"/> don't know
<input type="checkbox"/> an alarm	<input type="checkbox"/> don't know

(CHECK ALL APPLICABLE)

46. Does it have a power source separate from your houses electrical system?

(1) yes (2) no (3) don't know

47. Does it would an alarm inside the house?

(1) yes (2) no (3) don't know

48. Does it sound an alarm at the fire department?

(1) yes (2) no (3) don't know

49. Do you have any fire extinguishers in your home?

(1) yes (2) no (3) don't know

(IF YES):

50. How many? _____

(GO TO QUESTION 65)

(MULTIPLE DWELLING UNITS ONLY)

Not I would like to ask you about the fire alarm systems.

51. A fire alarm system can be made up of heat sensors, smoke detectors, sprinkler system, an alarm, or any combination of these devices. In the public areas of your building, like the hallways, the stairways, the laundry room or the basement, is there a fire alarm system?

(1) yes (2) no (3) don't know

(IF NO OR DON'T KNOW, GO TO ITEM 56)

52. Does it contain:

<input type="checkbox"/> a heat sensor	<input type="checkbox"/> don't know
<input type="checkbox"/> a smoke detector	<input type="checkbox"/> don't know
<input type="checkbox"/> a sprinkler	<input type="checkbox"/> don't know
<input type="checkbox"/> an alarm	<input type="checkbox"/> don't know

(CHECK ALL APPLICABLE)

53. Does it have a power source separate from your building's electrical system?
 (1)___yes (2)___no (3)___don't know
54. Does it sound an alarm inside the building?
 (1)___yes (2)___no (3)___don't know
55. Does it sound an alarm at the fire department?
 (1)___yes (2)___no (3)___don't know
56. Are there any fire extinguishers in the public areas of the building?
 (1)___yes (2)___no (3)___don't know

(IF YES):

57. How many? _____
58. And what about your apartment itself. Does it have a fire alarm system?
 (1)___yes (2)___no (3)___don't know

(IF NO OR DON'T KNOW, GO TO ITEM 63)

59. Does it contain:

___ a heat sensor	___ don't know
___ a smoke detector	___ don't know
___ a sprinkler system	___ don't know
___ an alarm	___ don't know

(CHECK ALL APPLICABLE)

60. Does it have a power source separate from your building's electrical system?
 (1)___yes (2)___no (3)___don't know
61. Does it sound an alarm inside the building?
 (1)___yes (2)___no (3)___don't know
62. Does it sound an alarm at the fire department?
 (1)___yes (2)___no (3)___don't know

63. Are there fire extinguishers in your apartment?

(1)___yes (2)___no (3)___don't know

(IF YES):

64. How many? _____

(FOR ALL RESPONDENTS)

65. Does your household ever have practice drills in how to leave your home in case of fire?

(1)___yes (2)___no (3)___don't know

(IF NO OR DON'T KNOW GO TO ITEM 69)

66. How often do you have these drills? ____/times per year

67. Do you have a fixed meeting place outside?

(1)___yes (2)___no (3)___don't know

68. Do you practice ways of leaving the house other than through the doors?

(1)___yes (2)___no (3)___don't know

69. How well would you say your household is prepared for a fire? Would you say that (1) your household is not prepared for a fire at all, (2) is somewhat prepared, (3) is moderately prepared, (4) is very well prepared, or (5) is prepared as well as possible for a fire?

(1)___ not prepared
 (2)___ somewhat
 (3)___ moderately
 (4)___ very well
 (5)___ as prepared as possible

(INTERVIEWER: IF THE RESPONDENT HAD NOT HAD A FIRE BETWEEN SEPT. 1, 1975 AND AUG. 31, 1976 (QUESTION 4) SKIP TO PAGE 16, QUESTION 122)

Not I'd like to ask you some questions about the fire you had between September 1, 1975 and August 31, 1976.

(INTERVIEWER: IF THE RESPONDENT HAS HAD MORE THAN ONE FIRE DURING THE PERIOD, COLLECT THE DATA ON ALL FIRES, STARTING WITH THE MOST RECENT.)

70. Have you moved since the fire?

(1)___yes (2)___no

71. Were you living in a house, apartment or condominium building at the time of the fire?

(1)___house (2)___multiple dwelling

(IF HOUSE GO TO ITEM 73)

72. Was the fire in your apartment or elsewhere in the building?

(1)___own apartment (2)___elsewhere in building

73. What was the date of the fire?

(1)___ Jan. (7)___ July (___) Date
 (2)___ Feb. (8)___ Aug.
 (3)___ March (9)___ Sept.
 (4)___ April (10)___ Oct.
 (5)___ May (11)___ Nov.
 (6)___ June (12)___ Dec.

(INTERVIEWER: BOTH MONTH AND DATE IS DESIRED: e.g., (3) X March, (1) 8 date).

74. Is the date an exact figure or is it an estimate?

(1)___exact (2)___estimate

75. What time was the fire discovered?

_____ AM/PM (WRITE IN TIME AND CIRCLE AM OR PM).

76. On what floor did the fire begin? _____

77. Was the fire confined to the floor on which it began?

(1)___yes (2)___no (3)___don't know

78. Was anything damaged?

(1)___yes (2)___no (3)___don't know

(IF NO OR DON'T KNOW SKIP TO ITEM 83)

I would like to get an estimate of dollars of how much damage was caused by the fire both to the building and to its contents.

79. How much damage did the building receive?

_____ don't know

80. How much of this was covered by insurance? _____

- insured but not claimed
 not insured
 don't know

81. How much damage did the contents of the building receive?

_____ don't know

82. How much of this was covered by insurance? _____

- insured but not claimed
 not insured
 don't know

(INTERVIEW NUMBER _____).

83. Was anyone injured? (1) ___yes (2) ___no

(IF NO, GO ON TO ITEM 85)

83. Could you tell me about it? _____

85. What was the first thing to catch on fire? _____

86. What was the cause of the fire? _____

87. Was the fire department contacted?

- (1) ___yes (2) ___no (3) ___don't know

(IF NO, SKIP TO ITEM 101)

(IF YES)

88. How was the fire department contacted? _____

89. How many minutes did it take to contact the fire department after the fire was discovered?

_____ minutes

90. How long was the fire department at the scene of the fire?
_____ minutes
91. Did the fire department have to give first aid to anyone?
(1)___yes (2)___no (3)___don't know
92. How many fire trucks came to the building?
_____trucks ()___don't know
93. Did the fire department use water hoses at the fire?
(1)___yes (2)___no (3)___don't know
94. Did the fire department use extinguishers at the fire?
(1)___yes (2)___no (3)___don't know
95. Was the fire confined to the building in which it began?
(1)___yes (2)___no (3)___don't know
96. Did the fire department rescue anyone from the building?
(1)___yes (2)___no (3)___don't know
97. Was there any attempt to put out the fire before the fire department was contacted?
(1)___yes (2)___no (3)___don't know
(IF NO, GO ON TO ITEM 100).
98. Who attempted to put out the fire? _____

99. What was involved in the attempt to put out the fire?

100. I'd like you to rate the fire department on how satisfied you were with their performance. On this scale one means you were not satisfied at all and 10 means you were completely satisfied.
- 1 2 3 4 5 6 7 8 9 10
not satisfied completely satisfied

(IF THE FIRE DEPARTMENT WAS NOT CALLED.)

101. How was the fire put out? _____

102. Were you in the building at the time of the fire?

(1)___yes (2)___no

(IF THE RESPONDENT WAS NOT IN THE BUILDING AT THE TIME OF THE FIRE, SKIP TO PAGE 16, QUESTION 122)

103. In what room did the fire begin? _____

104. Were you in the room at the time the fire began?

(1)___yes (2)___no

105. What were you doing at the time the fire broke out? _____

106. How did you become aware of the fire? _____

107. When you first became aware of the fire, did you see any smoke?

(1)___yes (2)___no

108. Did you smell smoke at that time?

(1)___yes (2)___no

109. Did you see any flames at that time?

(1)___yes (2)___no

110. At any time during the fire incident, did you think that there wasn't really a fire? (after becoming aware of the fire)

(1)___yes (2)___no

(IF NO, GO ON TO ITEM 112)

(IF YES)

111. Could you tell me about it? _____

112. When you first noticed the event, how sure were you that the event was a fire? Would you say that you thought it was definitely a fire, probably a fire, probably not a fire, or definitely not a fire.

(1)___definitely (2)___probably (3)___probably not

(4)___definitely not

113. When you first became aware of the fire how confident were you that you could handle the situation? Would you say that you were very confident, somewhat confident, or not very confident?

(1)___very (2)___somewhat (3)___not very

114. When you first became aware of the fire, did you think you could put out the fire yourself or did you think you would need help?

(1)___put out self (2)___need help

115. When you first became aware of the fire did you think that the fire was extremely serious, very serious, somewhat serious, or not at all serious.

(1)___extremely (2)___very (3)___somewhat (4)___not at all

116. Did you leave the building during the fire?

(1)___yes (2)___no

(IF NO, GO ON TO QUESTION 120)

(IF YES)

117. In leaving did you use the normal exists from your building or did you leave some other way?

(1)___normal exists (2)___some other way

please specify _____

118. Did you return into your building during the course of the fire?

(1) ___ yes (2) ___ no

119. Why? _____

120. What reason did you have for not leaving the building? _____

Finally, we have just a few questions for background information.

122. How much education have you had?

- (1) ___ 8 grades or less
- (2) ___ some high school
- (3) ___ high school graduation
- (4) ___ some college
- (5) ___ college graduate
- (6) ___ higher education

123. What is your age? _____

124. Are you employed full-time? (1) ___ yes (2) ___ no

125. If not, are you looking for full-time work? (1) ___ yes (2) ___ no

126. What is your marital status?

- (1) ___ married
- (2) ___ widowed
- (3) ___ single
- (4) ___ divorced
- (5) ___ separated

127. I would like to get some estimate of your total combined income of all the household members. Would you say it is under

- (1) ___ under \$5,000
- (2) ___ \$5,000 - \$10,000
- (3) ___ \$10,000 - \$15,000
- (4) ___ \$15,000 - \$20,000
- (5) ___ \$20,000 - \$25,000
- (6) ___ \$25,000 - \$30,000
- (7) ___ \$30,000 and over

128. What is your race?

- (1) White
 (2) Black
 (3) Spanish Speaking
 (4) Other

129. Later this year we will be in a position to conduct home fire safety checks. There is no charge for this service and you will be advised of any potentially dangerous hazards. Would you be interested in having your home checked for fire safety?

- (1) yes (2) no

130. Would you prefer to have your home checked by members of the fire department or by the building department or doesn't it matter.

- (1) fire (2) building (3) doesn't matter.

We may not be able to check everyone's home this year. If we can get to your home this year we will call you back.

131. We really appreciate your help with our survey. Since you have been so cooperative, we would like to send you some information on fire safety in your home.

May I have your name and address?

_____ Thank you. Good bye.

Respondent was: (1) male (2) female

Time finished _____ AM/PM

Today's Date _____

APPENDIX B

Scenario 1

What would you do right now if your clothing caught on fire?

Content Analysis Categories

Scenario Rating	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Most Optimal	114 60.6%															
1																
2			26 13.8%						11 5.9%			1 0.5%				
3		12 6.4%			8 4.3%		1 0.5%				1 0.5%					
4				4 2.1%				4 2.1%		2 1.1%				1 0.5%	3 1.6%	
Least Optimal Given No Rating						2 -							1 -			2 -

1. Roll self in/on floor or rug.
2. Take off clothes.
3. Wrap self in something.
4. Get into shower.
5. Beat fire out.
6. Try and put it out.
7. Beat fire out and put water on them.
8. Use water.

9. Smother it out.
10. Call fire department.
11. Take clothes off and roll around.
12. Drop to group
13. Don't know.
14. Jump out window.
15. Run.
16. Panic.

Scenario 2

What would you do if you woke up at night, smelled smoke, and found that your door was shut but hot when you touched it?

Content Analysis Categories

Scenario Ratings	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Most Optimal	30 16.3%	77 41.8%		1 0.5%		9 4.9%		1 0.5%		11 6.0%						1 0.5%	
1			7 3.8%								1 0.5%						
2							7 3.8%		5 2.7%								
3																	
4					34 18.5%												
Least Optimal																	
Given no Rating												1 -	3 -	4 -			1 -

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Call fire department. 2. Go out window. 3. Go to window, open window, break window (no mention of going out). 4. Call fire department and go out window. 5. Open door. 6. Would not open it. 7. Try to find another way out, leave door shut. 8. Call for help (not by phone). | <ol style="list-style-type: none"> 9. Try to get out (no mention of door). 10. Open window and call for help. 11. Cover cracks in door and go to window, open window, break window. 12. No bedroom door. 13. Go out other door. 14. Don't know. 15. Panic. 16. Cover cracks and call fire department 17. Wake up husband. |
|--|--|

Scenario 3

What would you do if the grease in your frying pan caught on fire?

Content Analysis Categories

Scenario Ratings	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Most Optimal 1	14 7.4%	26 13.7%	39 20.5%					32 16.8%				13 6.8%			6 3.2%	
2													4 2.1%			
3						6 3.2%			7 3.7%	9 4.7%						
4 Least Optimal Given No Rating				9 4.7%	1 0.5%		12 6.3%									4 2.1%
											1 -			1 -		

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Smother it. 2. Throw salt on it. 3. Put baking soda on it. 4. Put flour on it. 5. Put salt or flour on it. 6. Let it burn out. 7. Throw water on it. 8. Put the lid on the pan. | <ol style="list-style-type: none"> 9. Put in sink (only). 10. Take off the stove. 11. Don't know. 12. Use fire extinguisher. 13. Put in sink and smother it out. 14. Put it out (only). 15. Throw salt or baking soda on it. 16. Throw it out door (take it outside). |
|---|---|

Scenario 3
(Continued)

What would you do if the grease in your frying pan caught on fire?

Content Analysis Categories

Scenario Ratings	17	18	19	20	21	22
Most Optimal 1			4 2.1%			
2	1 0.5%					
3				1 0.5%		
4 Least Optimal		1 0.5%			1 0.5%	
Given no Rating						1 -

- 17. Not put water on it.
- 18. Turn it upside down.
- 19. Throw dish towel on it.

- 20. Throw it in oven.
- 21. Use flour or baking soda.
- 22. Panic.

APPROVAL SHEET

The thesis submitted by Michael A. McDaniel has been read and approved by the following committee:

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The final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the thesis is now given final approval by the Committee with reference to content and form.

The thesis is therefore accepted in partial fulfillment of the requirements for the degree of Master of Arts.

12/8/77

Date



Director's Signature