

PERCEIVED PRODUCT HAZARD NORMS IN YOUNGER AND OLDER
ADULTS

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PERCEIVED PRODUCT HAZARD NORMS IN YOUNGER
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SUMMARY

Designers and researchers have often assumed that individuals rely to some degree on individual perceptions of a product's hazard when interacting with warning systems that accompany the product. However, few investigations have been made to determine what precisely these perceptions are, and how they may differ across diverse populations (such as age). Younger and older adults were tested for perceived product hazards over a diverse group of products using a Battig and Montague (1969) style procedure. Participants were presented with a total of 78 products, and asked to list the first hazards that came to their mind (up to 7 per product) for each. Comparisons revealed age-related differences between the most commonly perceived hazards for 28 of the products, with many of the age-related differences not predicted prior to data collection. The resulting data additionally form a tool for designing warning systems and research stimuli based on the products or classes of products represented in this sample.

CHAPTER 1

INTRODUCTION

The requirement to have normative data for stimuli components in research psychology has long been an established fact. Researchers such as Cohen, Bousfield, and Whitmarsh (1957), and Battig and Montague (1969) provided psychologists with extensive norms for use by those interested in verbal materials. These early norms allowed researchers to predict category norms for college aged individuals and numerous researchers have updated and extended such category norms to populations in diverse geographic locations, and more recent samples (Marshall & Parr, 1996; Van Overshelde, Rawson, & Dunlosky, 2004). While “basic” psychological research often invests in developing norms, more applied avenues, such as the psychology of warning design, of investigation often lack more specific, complex, normative data. While there are norms for warning building blocks, such as the relative salience of specific color combinations in warnings, or information about how signal words are processed relative to each other and ‘neutral’ text, there are few norms for complex warning units, such as what hazards individuals associate with specific products, or what symbols people mostly associate with specific hazards. In some sense, this deficit might be thought of in terms of the usefulness of category norms, such as the frequency of college aged individuals who will list diamond first when asked to list gemstone. This information may be useful for a very specific prediction, but it not sufficient for determining how individuals may interpret a paragraph that contains the word diamond.

The current deficit in warning stimuli normative data becomes more significant as researchers begin to investigate reducing the inference requirements of warning system content. At this point in warnings related research it is logical to approach aspects of improving warning comprehension through content. While extensive research exists concerning warning design related to perceptual and cognitive salience, research into modifying content has been less complete. Although it is generally agreed that a warning is most effective when it is explicit and clearly written, there are no clear guidelines about how to move beyond clear writing into effectively guiding the inferences that warnings require.

Even in those instances where normative data exists for warning components (e.g. Hancock, Rogers, Schroeder & Fisk, 2004), the picture is incomplete. Testing participants with warning components in isolation does not elicit the perceptions emergent from combinations of warning components. Warning related beliefs and experience based inferences are not likely to be captured by rules built on warning components. Current data cannot help answer the critical question of what hazards people immediately consider when faced with a specific product. An appropriate starting point to examine this frontier of warning research is to examine the means of warning, the warning process, and results from research on warnings.

Warnings at a Minimum

Consensus exists in the body of research examining warning labels as to both the role and general requirements of warnings. Warning labels should be reserved for those situations in product design where a hazard cannot be designed out or completely guarded against (Sanders & McCormick, 1993) and where the hazard is not obvious to

some segment of the user population. In instances where designers must apply warnings to inform consumers about safe behavior, they have the responsibility of ensuring that the warning contains all of the elements necessary to encourage compliance.

Warning researchers generally agree that warnings must contain four elements: a signal word, a hazard statement, a statement of consequences, and instructions for avoiding the hazard (Heaps & Henley, 1999; Sanders & McCormick, 1993). The signal word is a single word intended to both attract an individual's attention and connote the appropriate level of hazard¹. In addition to providing a signal word, a warning must state the nature of the hazard, followed by a statement of the potential consequences of not complying. For the statement of consequences, both the likelihood and severity of the consequence should be provided (Sanders & McCormick, 1993), but research suggests that the severity information is most predictive of compliance (Wogalter, Brelsford, Desaulniers, & Laughery, 1991; Wogalter, Young, Brelsford, Barlow, 1999). After providing information about the hazard and its consequences, a warning must contain instructions for safe behavior that the user can engage in to avoid the hazard. One final design consideration is that warnings should be placed so that they are available at the time the user is most likely to encounter the hazard (Sanders & McCormick, 1993). Rousseau, Lamson, and Rogers (1998) suggested that for populations with diminished working memory capacity this type of warning placement is particularly critical. While research may clearly establish that warnings require the preceding components, the warning process envisioned by Rogers, Lamson, and Rousseau (2000) reveals places where novel intervention might aid in the execution of each component.

¹ For example, ANSI Z535.4 specifies the signal words danger, warning and caution (ANSI, 1998).

The Warning Process

A particularly useful framework for examining warning related variables was introduced by Rogers, et al., (2000). The four stages of the warnings process are: notice, encode, comprehend, and comply. They presented the warning process as four stages, stages that interact with person and warning variables to determine the likelihood of compliance. The person variables in the warnings process cannot directly be manipulated or changed, as a product is likely to be used by a large and diverse population. Even products targeted to a select group should have a warning designed to accommodate any potential users, because the designers generally cannot exclude other user groups. Therefore person variables such as the age of the user must be addressed by modifying warnings variables such as text size and text complexity. At each stage of the warning process as laid out by Rogers et al., potential exists for warning design to improve warning compliance.

The first stage of the warning process is noticing the warning. Warning variables that have been shown to influence this stage are generally perceptual factors such as the size, shape and color of the warning. These perceptual variables establish the saliency of the warning and are essential to noticing the warning. Signal words, pictures, and symbols also play a critical role in this stage. Appropriate symbols or other graphics can aid in noticing when placed in conjunction with warning text. After a warning is noticed, it must be encoded.

Encoding is the second stage of the warning process, and some of the variables relevant to noticing the warning are also critical in this stage. During encoding, individuals proceed to read or otherwise translate warning content. A user might notice

that a warning exists, but if it is not read, then it has not been encoded. Basic perceptual variables such as size, color, and emphasis (i.e., highlighting) play an important role in moving the user from noticing the warning to encoding it. Additional perceptual variables relate specifically to written text. Use of appropriate font size, font style, and text style (i.e., signal warnings presented with a different font or style) are as critical to elicit encoding in warnings, as in any other text. Use of signal words is again important, with danger, warning and caution each increasing the likelihood that a warning will be encoded (Rogers et al., 2000; Wogalter, Jarrard, & Simpson, 1994). Finally, the physical integrity of this warning information must be maintained through product use (i.e., there should be limited faded text or worn labels). If a warning is noticed and encoded, it can then be comprehended.

The third stage in the warning process, comprehension, relies on a combination of variables. In the comprehension stage, an individual processes the meaning of the warning, so that successful comprehension is synonymous with understanding the warning. Some variables that affect encoding also influence comprehension, such as text layout, and warning placement. For users to comprehend a warning, variables such as text complexity and explicitness are also critical. For a warning to be understood, elements of text complexity such as vocabulary, syntax, and voice must be appropriate. Vocabulary and syntax must not be unnecessarily high level or complex (Lepkowska-White, & Parsons, 2001; Rogers et al., 2000), but the warning must explicitly state the consequences of non compliance as precisely as possible, to aid accurate comprehension of the severity of the hazard (Rogers et al.; Wogalter et al., 1991 Wogalter et al., 1999). After a warning is understood, the final step in the warning process is compliance.

Even if a warning is comprehended, the user must still make the decision to comply. While the decision to comply is influenced by the variables important to previous stages, such as color and the use of symbols, it is at this stage that the previously mentioned warning components are most critical. To result in compliance, the warning text must convey the nature of the hazard, appropriate behavior for avoiding the hazard, and potential consequences of not avoiding the hazard. According to Rogers et al. (2000), the statement of the hazard must be as explicit, and contain as much information as possible to increase compliance. In addition, the warning must provide guidance to compliant behaviors. Providing response information in this way guides the user in choosing safe behavior.

The warnings process reveals a number of variables of differing complexities that contribute to warning effectiveness, and provide potential targets for improvement. Those variables that generally affect noticing and encoding are primarily perceptual, while the comprehension and compliance stages are reliant on warning text content. While guidelines must be established for both types of variables, there are compelling reasons for current warnings related research to focus on text content as a particular target for intervention.

Improving Warnings

To improve warning design, researchers seek variables that offer the greatest potential impact on compliance. Factors that influence the first stages of the warnings process are mostly perceptual, whereas the latter stages are more cognitively driven, through text processing. Therefore, researchers interested in improving warning

compliance are likely to find the greatest opportunity for impacting compliance by altering the content of this text.

Targeting the warning text is important for at least three reasons. First, well-documented and empirically based recommendations already exist for perceptual warning variables. Extensive research has been done into the use of signal words, appropriate text sizes and colors, and even physical properties of text layout (see Rogers et al., 2000, for a review of these findings). These variables have been investigated using methods ranging from computer simulations (Glover & Wogalter, 1997), to behavioral observation (Fuller, & Sulsky, 1995). Specific recommendations also already exist for appropriate warning design for older adults, with respect to perceptual variables (Rousseau et al., 1998).

Second, recommendations for modifying the perceptual elements of warning labels may be of limited utility. Because warnings are often intended to be available at the time of a product's use, warnings are often constrained in space and physical design. While other aspects of a warning system can be modified to accommodate changes, it is unlikely that a product's size will be increased to incorporate more warning label text or a larger font. Therefore, even with clear recommendations available, perceptual manipulations may not be a significant point of intervention beyond those already available in existing standards (ANSI, 1998).

Third, the challenges that must be met to facilitate comprehension in warning text are similar to those in other text formats. While instructions or informational pamphlets may not be able to make use of improvements related to signal words and warning related color schemes, they can benefit from warning text-related research. Warning comprehension can be thought of as a form of text comprehension that places additional

demands on the reader due to the limited amount of text and high cost of a failure to comprehend. One of those additional demands is the high level of inferencing required by warning texts.

Warnings and Inference

Whenever individuals encounter novel text, they make a series of inferences about the meaning of the text, beyond what is explicitly stated (O'Brien, Shank, Meyers, & Rayner, 1988). As individuals read through some types of text, they engage in inferences that predict what will follow in a passage and constrain the underlying meaning of the passage (Garrod, O'Brien, Morris, & Rayner, 1990). Both older and younger adults have been shown to use crystallized knowledge to make inferences about warning meaning, even for short passages presented without an associated product (Hancock, Fisk & Rogers, in press). Furthermore, Hancock et al. demonstrated that when individuals encounter a situation where they must recall a warning, they often recall an inference they made about the warning rather than the actual content of the warning.

Unfortunately, individuals are often faced with more than just inferences about the meaning of a warning. Limited space for product warning text, user centered limitations in the time available for processing warnings and limitations in working memory all place constraints on warning text lengths. Because of this limited space, warnings often cannot contain examples of safe behavior in all possible situations. For every situation that is not explicitly dealt with in the warning label, individuals must make an inference about safe behavior. It is through these inferences that the information in the warnings is transformed into guidance for product use. An improper inference might result in a warning that is available, verbatim, to an individual, but fails to provide

an appropriate framework for safe interaction with a product. Unlike failures in noticing and encoding, failure would be possible for an individual who had read the warning with the intent to comply, but had made an improper inference. In such an instance, safe behavior was the intent, but the individual would have inferred the wrong behavior to be safe, therefore unintentionally failing to comply.

Because warnings do not explain precisely how a product operates, they often leave the user to make inferences about the nature of a hidden hazard. Often warnings about hidden hazards fail because they do not completely explain the nature of the hidden hazard, but only give an instruction to avoid it. Wogalter et al. (1991) found that two predictors of a product's hazard rating were its technological complexity and the confidence of individuals about whether they understood its hazards. While this indicates that consumers may understand that hidden hazards exist for some products, simply knowing that a product might be dangerous does not allow one to infer safe behavior. As a result, one of two situations can develop: An individual can attempt to interact safely with a product and fail, or an individual can choose not to comply with a warning without fully understanding the consequences of his/her actions (Nichols, Mayhorn, Whittle, Hancock, Rogers, & Fisk, 2002).

As an example of the first situation, consider a case where a boat has a warning telling the operator to stay away from the rear during operation. While the user might believe this warning is to prevent him/her from being injured by the propellers in the back of the boat, the hidden hazard is that exhaust can build to lethal levels in this region. The incorrect inference made by the user could be fatal if s/he decides to lean over the back of the boat, avoiding the propeller, unaware of the exhaust danger.

As an example of the second situation, a warning might instruct an individual to wear gloves when using a high-powered paint sprayer. If the reason (because the sprayer could inject poisonous paint through a person's pores) is not explicitly stated, however, then the user may make the mistake of assuming the instruction was intended to guard against the sting of the high-pressure stream or merely to prevent getting paint on one's hands. Given these minor consequences, the individual might make a disastrous decision not to comply, if gloves are not easily available and the minor sting or painted hands are not judged costly enough to avoid. The individual here is making an inference about the severity of the hazard posed by the product and making the decision not to comply. In these simple examples, it might be easy to disclose the full nature of the hazard; but in more complex situations, it may be difficult, if not impossible, to do this in the space available.

Because a warning label cannot explicitly include every possible situation, there will be circumstances where the user must make inferences about compliance. These inferences represent a critical point where the warnings process may break down and therefore a point where proper intervention can improve compliance. For the growing older adult segment of the population, research has demonstrated they have reduced inferencing capabilities in general and in warning situations in particular (Hancock, 2001). As older adults may have more difficulty with inferencing, this is an even more attractive avenue of intervention when considering the older adult population in warning design.

A Case for Additional Warnings Norms

In order to identify techniques and design warnings that result in better comprehension, researchers and designers first need normative data about the hazards individuals already perceive. For researchers, the central task is to design effective stimuli for testing new ideas for improving warning content. In order to accurately test the effect of new interventions on comprehension and eventual compliance with a warning text, researchers must first have access to the pre-existing hazard perceptions of participants. If different warning stimuli are either violating or reinforcing pre-existing hazard expectations, the researcher may encounter variability driven by these influences, and be unable to isolate the effects of the central manipulation. For designers of warning text, it is optimal to know which hazards individuals associate with products for two reasons. First, knowing which hazards individuals are likely to correctly identify guides the designer in what hazards should be emphasized in the warning. Second, being aware of the common hazard misconceptions for a product allows the designer to specifically counter these misconceptions proactively within the warning. Therefore, norms can reduce the “solution space” of possible warning designs in the formative stage of product deployment.

The problem is simply that there is no source of normative data to inform researchers or designers what hazards individuals associate with specific products, or what products individuals associate with specific hazards. While a few studies have attempted to establish normative data for specific aspects of warning design, none have explicitly approached the product-hazard association. Hancock, Rogers, Schreoder and Fisk (2004) used a norming procedure they labeled the ‘phrase generation’ technique to

establish the common responses younger and older adults had to ANSI warning symbols. This technique was similar to Battig and Montague (1969), and allowed Hancock et al. to determine which symbols younger and older adults interpreted correctly, and whether the correct interpretation was the first interpretation. As part of an effort to determine the connection between perceived hazardousness and injury severity, Wogalter, Brelsford, Desaulniers and Laughery (1991) asked participants to generate the first three potential accidents that came to mind for a list of products. While this list approaches the question of perceived product hazards, it does not ask the question directly, and was never intended to be used as normative data outside of the scope of comparison to participant rankings of how hazardous the products were. Wogalter et al. used techniques appropriate for creating norms, but did so on a scale and with the goal of answering a particular research question. Since these studies represent the best attempts to date at creating norms for warnings research, it is clear that the area of hazard perception still requires additional collection of normative data.

Creating Hazard Norms for Continued Use

With a large sample of products, and a reasonable sample of both younger and older adults, these data present a valuable resource for practical warning applications. Designers of warning systems for products or classes of products represented on the list are the most obvious benefactors of this data set. These practitioners could potentially use this information to find out what hazards of their product individuals may already be aware of, and what hazardous aspects they tend not to consider. Using the resulting data tables as a guide, designers can create more effective warnings by providing additional emphasis on aspects of the hazard situation that require it. Designers of unrepresented

systems can also benefit from the data set by comparison to products that match the hazards present in their product. If the new product has a similar group of hazards to a familiar product, the designer could learn what to emphasize from the information provided with the familiar product. Finally, this data set can be expanded to additional products and additional participant groups to start to develop an increasingly comprehensive set of normative data based on this initial project.

CHAPTER 2
METHODOLOGY

Participants

One hundred and two participants, 44 older adults and 58 younger adults (see Table 1 for detailed demographic characteristics) completed this study. Younger adults were recruited from a participant pool available at the Georgia Institute of Technology, and were compensated with course credit or pay. Members of the younger adult group could alternatively select pay as an option if they did not choose course credit. Older adults were recruited from individuals living in the region around the university who were interested in participating in research studies. Older adults were compensated \$25 for their participation in the study. Fourteen participants were excluded from the study because their data indicated that they failed to follow directions, did not complete the participant packet, or because English was not their primary language.

Table 1 – Participant Demographics

	Older Adults	Younger Adults
Age Range	65-78	18-23
Mean Age	70.71 (3.51)*	19.81 (1.28)*
Gender		
Male	18	31
Female	26	27
Education	14.38 (2.16)*	13.44 (1.34)*

* Standard Deviations listed in parenthesis

Materials

Participant Packets.

Each participant packet contained 80 pages, each page containing a brief synopsis of the instructions (including the definition of a hazard), a unique product, and seven blank spaces for listing hazards (See Appendix A). The first two products were included as examples, and participants were shown example responses (constructed by the experimenter), after being allowed time to fill out each example. The remaining 78 products had been selected from a larger group of representative products.

Stimuli Selection

An initial pool of 137 potential products was chosen based both on previous research conducted in the area of product usage and product warnings, and potential findings useful to stimuli development. Research by Hancock, Fisk & Rogers, (2001) asked participants to fill out questionnaires on list of (73) products, answering questions about the level of experience they had with each product, and how dangerous they considered each product. Mayhorn, et al. (in press) provided an additional source of products, with each of these products having been mentioned by older adults had as containing hazards. These product sources were augmented by products chosen from a comprehensive inventory of a major department store and home improvement center to the final list of 137.

The 78 product text names were chosen from an initial list of 137 products, based on the responses of seven younger adult pilot participants. Criteria for eliminating products based on this analysis included: any product without responses from two or more participants; any product that two or more participants could not define; products

which were synonymous with more than two other products (in several instances, two potentially synonymous products were allowed to remain, to determine whether differences in labeling generate different hazards); products that did not have the same single hazard mentioned by three or more participants; and products that did not have at least one hazard mentioned first by three or more participants. The resulting list of 78 products was then randomized in two different orders for use in the participant packets. Products were grouped in three ways, by classification, by similarity, and by potential age related differences.

Classifications grouped products into one of seven total categories, chemicals, small appliances, major appliances, electrical items, over-the-counter drugs, and miscellaneous products. Definitions for some of these classes come from the previous work of Mayhorn, et al. (in press) and Hancock, et al. (2001), while others have been created for this set of products. The list of products and product groupings can be found in Table 2 of Appendix A, with the groups as follows:

- Chemicals – liquid or aerosol products that act chemically and directly to perform their task (e.g. – bleach)
- Electrical – products of various types with electricity or electrical properties implied in the product name (e.g. – electric grill)
- Small appliances – small, easily portable electrically powered devices without electricity suggested in the name (e.g. – blender)
- Major appliances – large, difficult to move appliances powered by electricity, or any item that might reasonably be expected to run on gasoline (e.g. – chain saw)

- Over-the-counter drugs – medications that an individual can purchase without a prescription (e.g. – pain reliever)
- Tool – any manual implement used to perform a specific task (e.g. - axe)
- Miscellaneous products – any additional product that does not fit into the other categories (e.g. – shower)

In addition to their primary categories, some products were also selected out either as groups of products with hazards patterns, or as products expected to differ across age groups. Those products that are grouped together were to be examined for similar patterns of results, in order to determine if the hazard perceptions of individuals were as similar as the product hazards. The eight products selected as potentially demonstrating age-related differences were selected because they were thought to contain hazards of special interest to the aging population (tripping hazards, shower scalding hazard, falls), or because difference in experience was anticipated across age groups (skateboard, roller skate).

Equipment.

Testing was conducted with white noise generators operating to minimize the effects of noise in the group testing environment. During the instructions, examples were presented by means of an overhead projector.

Procedure.

Participants were tested in one single session of two-and-a-half hours, in groups of 3 to 10 participants per session. The testing session began after all participants arrived and completed both a written informed consent, and a demographics and health questionnaire. Participants were provided with a written summary of the instructions,

and their test booklets as they finished their demographics. Comprehensive instructions were given to the group, only after everyone was finished with demographics.

The group instructions introduced participants to the definition of a hazard, explained about the types of responses which were appropriate for the study booklet, and stepped participants through example products. The group instructions began by setting forth the definition of a hazard as “something that can cause the person using the product or someone else to get hurt.” This definition was further reinforced by providing participants with examples of common non-hazard responses for a garage door (based on the pilot data) such as answers that were descriptions of a user’s injury (rather than the hazard itself), or were attempts at constructing warnings (e.g. – “keep clear of door” rather than explaining that the door could crush someone). A brief summary of the instructions, and the definition of a hazard, were present at the top of every page of the study booklet. Participants were then instructed for each product to write, in the blank spaces provided, as many hazards as they could think of (up to seven), in the order that they thought of the hazards. The procedure was reinforced by completing two example products as a group. Participants were told to fill in the hazards for the first example product, spray paint, and they were given approximately one minute to fill out as many as they could. After time had elapsed, participants were shown example responses to this product on an overhead projector. Rather than going through the responses that participants had generated for the product, this same example was used for every session. The second example was immediately conducted in the same fashion as the first.

After both examples were complete, participants were instructed to begin, and informed that they would be proceeding through the rest of the test booklet at their own

pace. As each participant completed his/her packet, he/she would be taken into a separate room for debriefing and compensation. The total scheduled length for each session was two-and-a-half hours, though some participants finished early, and other participants elected to continue past this scheduled time to complete packets when they were behind.

CHAPTER 3

ANALYSIS AND RESULTS

Following data collection, each individual response was coded independently by two researchers. The coders met and completed several initial test products together to become familiar with the coding scheme. After sufficiently defining the parameters of the 46 coded categories, the researchers completed coding the rest of the product responses individually. These 46 coded responses also included 7 categories for answers that were not actually hazards (see Appendix B for an explanation of each hazard and non-hazard category). The researchers completed coding the responses independently, meeting to compare responses for agreement only after all of the responses had been coded. After the second pass of coding an inter-rater reliability (calculated as the percent of 22,761 hazard instances where independent coders agreed on category assignment) of 99.97% was obtained. The remaining items of disagreement were then resolved by the coders on a case by case basis by selecting one of the two alternatives.

For the purposes of this analysis, non-hazard response categories were kept in. That means that, for a given product, the most often provided response may not have been a hazard. For that reason, it might be worthwhile to consider this analysis of the results as an analysis of responses and not only hazards. The reason for leaving in the non-hazards was that if a participant's most often response to a product is a non-hazard, this in itself may be useful information. Different non-hazards may indicate a lack of knowledge about potential product hazards, a lack of salient hazards, or even a familiarity

with the consequences of a hazard, without a corresponding understanding of the hazard itself.

Additionally, while consistent selection of any of the hazard categories for a given product may indicate a decrease in variability about perceived product hazards, consistency in responding with a non-hazard may reflect the opposite. That is, if all of the participants responded that “fire hazard” was the greatest hazard of gasoline, then it would indicate a consistent perceived hazard. However, if all of the participants responded with various non-hazards classifiable into the category “miscellaneous non hazard”, then the consistent response selection may reflect variability in the perceived hazards. Therefore, for this analysis, the non-hazards were kept in, so that they might provide additional information.

Overview of Results

With two age groups, 78 products, and 46 hazard categories, specific analyses were targeted at each of these variables. For each product, the average number of hazards provided per participant, the total number of hazards generated, the hazards appearing most often in the first position, and the three most often listed hazards were tabulated. For each of the 46 hazard categories, the three products which most often listed the hazard, the average position that the hazard was listed, and the total number of times each hazard was listed were tabulated. Finally, age related differences in the frequency of hazard responses were investigated with a Chi-square analysis performed on each product. All data tables can be found in Appendix C.

In Table 4, the total number of hazards generated by participants is listed for each product. The number of hazards listed for each product is also provided as a function of

age. On average, participants generated 2.85 (SD = .43) hazards per product. Younger adults generated more hazard responses per product (M = 3.10, SD = 1.16) than older adults (M = 2.67, SD = 1.30). For each product, the three most common hazard responses are listed in Table 5. Table 6 lists the three most common hazard responses for younger adults, and Table 7 lists the most common responses for older adults. Table 8 lists the hazards most often listed in the first position for each age group, and overall.

Analysis of Hazards Categories

The responses collected from participants were hazards, listed initially as open responses, then coded into one of 46 hazard categories. The frequency with which each hazard was mentioned varied greatly, from 2288 responses classified as fire hazards, to only 3 classified as burns from a hot gas. Table 9 lists each hazard category and the number of total responses classified into that category. The first and third most common categories were actually categories for responses that were not hazards. The high placement of these non-hazard categories is expected given the wide range of products, as these categories are the only cases valid for every product. Responses for members of several different classes of products, such as bleach, scissors, and curling iron could all be classified as “miscellaneous non hazard”. However, it is unlikely that a specific hazard such as electric shock or fire hazard can be reasonably found for all three of these products. Therefore, the non-hazard categories should exist in large numbers, as they are valid for every product, not only a specific subset. An additional future analysis might therefore compare how often a hazard was listed relative to the number of potential times it could have been listed based on category membership.

For each hazard category, Table 10 contains the three products that most often mentioned the hazard, combining younger and older adults. Table 11 contains the three products mentioned most often for younger adults, and Table 12 for older adults. These products may be thought of as the prototypical (within this set) examples of products with this hazard. A product was only listed if the hazard was listed more often for that product than in any other, and if the product had more than two total responses. For example, the hazard “eye irritation” was mentioned most for the products hair shampoo, soap and ammonia. For hazards such as overdose and alcohol interaction, only a limited class of product was applicable, so that only two products used the hazard more than two times apiece.

Participants were instructed to write the hazards that came to their mind in the order that they thought of the hazards, allowing the order to suggest which hazards were first perceived. This order was captured in the data by ranking the position that each hazard response out of the seven potential response blanks. The average ranking for each product is listed in Table 13. Placement in the first answer blank should represent the first hazard the participant thought of, and is given a rank of 1. Therefore, the lower the product’s average rank, the more often it was available to participants as one of the first hazards to come to mind. Table 13 also lists the number of instances where each product was listed in the first position, and the number of total instances that the hazard was listed. Table 8 lists those hazards that came to mind in first, most often, for each product.

Not surprisingly, for each product in the electrical classification, electric shock was among the top three hazards. Additionally, electric shock was among the top three

hazards for all but one of the products in the small appliances group, the other group dominated by electrically powered items.

Comparison of Similar Products

From the 78 total products, a subset of 16 products were chosen as having the same hazards as one or more other products. The point of testing these products was to determine if, in fact, individual perceptions of product hazards matched as well as the actual hazards. For example, ammonia is the primary ingredient of most glass cleaners, and one of the primary hazards is inhaled poison in combination with bleach, which also is a component of most all-purpose cleaners. As a result, each of these products is expected to have similar hazards. The three hazards most often generated for each product are presented in Table 14.

Of the 16 similar products, nine products had the same hazards in the first and second position, two of which also had the same hazard in the third position. Of the remaining seven products that did not match up in at least the first two most selected hazards, both the pairings of step stool and footstool, and electric blanket and heating pad contained the same three hazards, but in a different order of ranking. The remaining products did not have a consistent matching of more than one position, or more than two hazards, indicating more difference in perceived hazards than anticipated. If, however, comparison is made while ignoring the slight differences in the number of times each of the top three hazards was listed, these differences disappear. That is, if the top three hazards for each product are considered to be unordered, then each of the similar products did have the same hazards listed most often.

Analysis of Age Related Differences

Overview and Method

Age related differences in hazard perception were a primary concern of this study. For that subset of products previously identified as anticipated sources of difference, the interest was to investigate the validity of a priori assumptions about age related differences. Age group differences for the remainder of the products were relevant for use of these products as stimuli in future research, as well as for identifying unanticipated sources of divergence. Although some comparisons can be made from the tables of hazards and most often associated products, a quantitative comparison was also conducted. In instances where response are generated and tabulated for frequency across groups of individuals, chi-squared testing is commonly applied to test the assumption of independence between responses and group membership.

The numbers of each hazard generated for each product were compared across age groups by means of a chi-Square analysis. Comparisons were therefore within each product, across age groups. For a valid test of independence, each cell of a chi-square analysis should contain at least 5 instances. For the purposes of the following comparisons, a cell contains the number of instances that a specific hazard was mentioned by each age group for a specific product. Therefore, the minimum number of responses to qualify a hazard for analysis was 10 total responses, 5 for the younger adults and 5 for the older adults. Given the large number of comparisons and available hazards for each product, a more conservative criterion level of 20 total responses was used. That is, for each product, the younger adult group and older adult group should each have contributed at least 10 instances of each hazard analyzed. However, only the total

number of 20 was actually used, so in some examples one group may not have actually contributed at least 10 instances. With this criterion level in place, the average number of hazards in each comparison remained at 4.54 (SD = 1.28), from a potential of 46 for each product.

With the analysis limited to hazards listed more than 20 times and 78 total products, chi-square analysis revealed age related differences in 28. Of these 28 products, 5 of the products were from the group of 8 anticipated to show differences. A summary of the chi-square analysis is found in Table 15 for those products with significant age related differences. In addition, there is a column providing a brief description of each result and the divergence from expected values that resulted in significance. The results for each of these products will now be discussed in greater detail.

Chi-Square Results for Products with Differences

Comparing the expected value in each cell of the chi-square analysis to the actual value allows the nature of the the age-related differences to be examined for each product. The complete set of comparisons including the actual and expected values for each cell are presented in Appendix B. Unless explicitly stated otherwise, the differences from expected values discussed for one age group are present in the opposite direction for the remaining age group.

The first group of interest is those products that were predicted to demonstrated age-related differences. The first of these products is the extension cord $\chi^2(5, N = 227) = 14.188, p = .014$, where younger adults showed a higher than expected proportion of electric shock and strangulation as a hazard. Older adults showed a higher level of

tripping hazard and both incomplete thoughts and miscellaneous non hazards. An increase in tripping responses for older was expected to drive the predicted difference, as falls are often considered to be of particular concern to older adults. Similarly, for the shower $\chi^2(3, N=220) = 26.158, p = .001$, older adults were correctly predicted to respond with greater numbers of hazards related to slipping and burns. In addition, for the shower, younger adults listed oxygen deprivation (liquid) and gave warnings more often than older adults, furthering contributing to the difference. While age related differences were expected for both stepstool and footstool, a difference was found only for footstool, $\chi^2(3, N=192) = 16.661, p = .001$. The expectation that older adults would list falls more than younger adults, however for these products, was not supported by the results. The younger adults listed falls more frequently than expected, while older adults responded more often with non hazards. The final two products, roller skate $\chi^2(3, N=205) = 15.175, p = .002$, and skateboard $\chi^2(4, N=247) = 117.484, p = .001$ in this group were expected to have similar responses, as they were chosen as a pair to generate the same hazards. These products were also expected to be less familiar to older adults, leading to an increase in incomplete thoughts and miscellaneous non hazards relative to younger adults. Younger adults were conversely anticipated to demonstrate increased knowledge through more frequent listing of the falling hazards and providing warnings rather than miscellaneous non hazards. This was the pattern of results found for both products.

The next group of products with age related differences was chemicals. Across these chemicals, one consistent trend was observed in the differences: younger adults consistently listed poison (ingested) more often than expected. Additionally, for

ammonia, $\chi^2(5, N=275) = 20.297, p = .001$, younger adults listed fire hazard, and older adults listed poison (inhaled) with increased frequency. For bleach, $\chi^2(6, N=290) = 13.577, p = .035$, expected to generate similar responses to ammonia and the other chemical cleaners, younger adults favored eye irritation, while older adults responded more often with chemical burn. Glass cleaner, $\chi^2(3, N=192) = 25.507, p = .001$, while consisting primarily of ammonia, did not have similar responses, with older adults responding more often than expected with incomplete thoughts. For bug spray, $\chi^2(8, N=346), p = .001$, younger adults responded more highly than expected with explosion hazard, eye irritation, fire hazard, and miscellaneous non hazard. Older adults responded with disproportionate incomplete thoughts and inhaled poison hazards. Finally, dishwashing detergent $\chi^2(3, N=192), p = .001$, and hair shampoo, $\chi^2(4, N=205) = 10.811, p = .001$, both had older adults responding with more incomplete hazards than younger adults.

The remaining 5 products with age related differences were from the miscellaneous category. Two of these products, bedspread, $\chi^2(3, N=121) = 10.332, p = .016$, and carpet, $\chi^2(2, N=129) = 29.533, p = .001$, had similar patterns of hazards. For each, younger adults disproportionately responded with fire and miscellaneous non hazards, while older adults responded highly more frequently than expected with tripping hazard. While not explicitly predicted, this is consistent with the reasoning used to predict age related differences for other products where it was expected that older adults would be more likely to list tripping hazards. Younger adults responded more highly with burns and miscellaneous non hazards for the fireplace, $\chi^2(4, N=279) = 21.563, p = .001$, while older adults responded with the fire hazard. For chair with wheels, $\chi^2(3, N=234) =$

10.415, $p = .001$, younger adults responded highly with blunt trauma, while older adults responded with additional miscellaneous non hazards. Finally, for horizontal blinds, $\chi^2(3, N = 138) = 20.092$, $p = .001$, younger adults listed oxygen deprivation (solid) and provided warnings more often, while older adults listed cutting hazard more often than expected.

Additional Sources of Age Related Differences

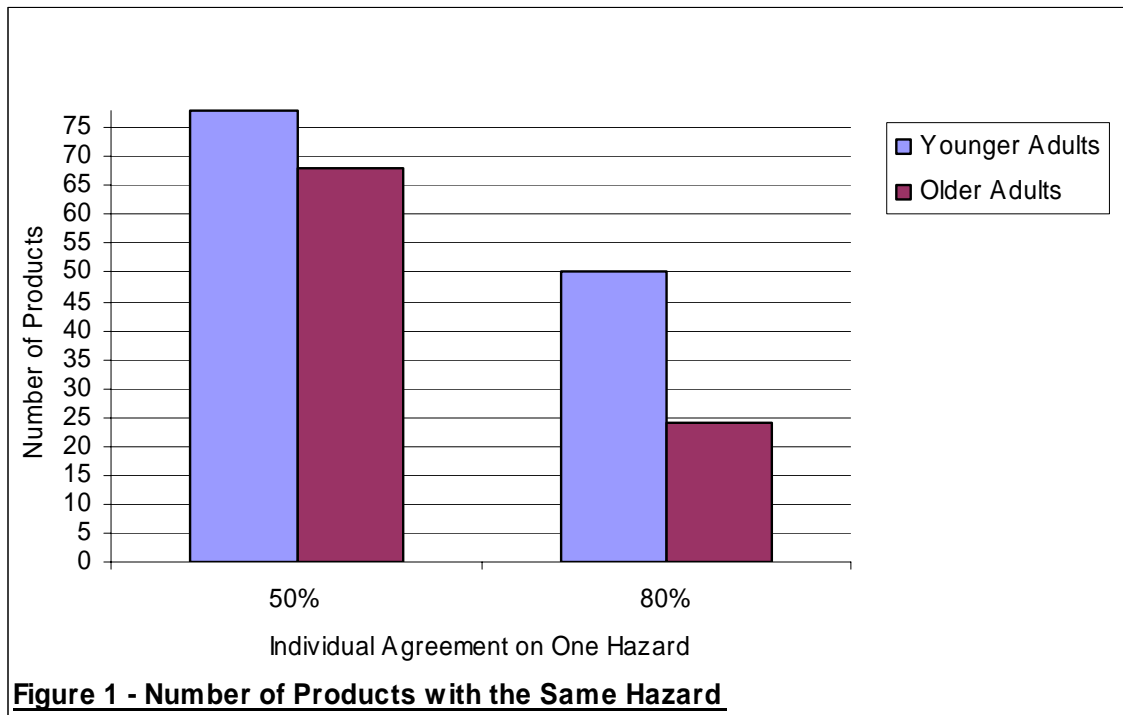
Although time was not monitored as part of the design, it was noted that older adults spent more time on the packets than younger adults, while generating few hazards on average. One possible explanation might be that older adults simply found the task more demanding than younger adults. Comments made by older adult participants during the study suggest that many of the older adults had to think carefully to generate more than one or two hazards per product. Several participants also reported to the experimenter they were having difficulty generating responses because hazards were not dangerous unless individuals were not intelligent or not careful.

CHAPTER 4

GENERAL DISCUSSION

Establishing that Norms Exist

The first goal of any collection of normative data is to establish that enough agreement exists to create coherent norms. If 102 participants produce each a different response, then data collection amounts to collecting potential responses and not norms. In order to establish the viability of this data as normative, two minimum levels of agreement (80% and 50%) were decided on, and the data were examined to see how many products held up for each level. These percentages represent the number of



individuals responding who responded with at least one hazard in agreement. That is, if a product's most common response is "fire hazard", then the product meets the minimum criteria if at least 80% or 50% of individuals at least included "fire hazard." Additional hazards might meet the criteria for a given product as well, but this examination was only for the most often mentioned hazard. Non-hazards were removed from consideration, so that the response agreement had to be for a specific hazard. As seen in Figure 1, at the 50% level, all 78 products met the minimum agreement criteria for younger adults, and 68 products for older adults. At the 80% level, younger adults had 50 products at minimum agreement, while older adults had agreement at this level for only 24 products. While these numbers do not reflect the strength of association seen in category norms, they certainly indicate sufficient agreement to assert that this can be considered normative data.

Age Related Differences

Two related points are worth mentioning in relation to age related differences: first, though a product is very common, it still may not be age indifferent; second, variability in older adults was shown to be greater than that in younger adults, and may drive some of these differences; and third, some age related variability may be driven by non hazard responses. While it seems logical that products in wide use across the lifespan are less likely to show age related differences, other factors besides use can result in different hazard perceptions. Conjectures can be made as to differences in exposure, education, and experience (the older someone is the greater the likelihood they have experienced or seen someone else experience the consequences of a product hazard). Cohort effects are also worth considering, such that older adults are more likely

to demonstrate selective experience with certain products based on gender. While younger adult male and female college students may share similar levels of exposure to kitchen appliances and tools, older adult females are more likely to have greater kitchen experience, while older adult males are more likely to have interacted with tools. Further future analysis may actually compare gender by age to see if this is a source of significant variability.

Variability was shown conclusively, however, in the amount of agreement demonstrated for specific hazards for individual products. As seen in Figure 1, older adults showed slightly fewer products with 50% agreement on at least one hazard than younger adults. While at least 50% of younger adults were consistent for every product, older adults only reached this level of consistency for 68 products. Older adults only managed an 80% level of agreement on 24 products, less than half of the 50 products that younger adults agreed on at 80%. This disparity in variability might be explained by the greater potential within group differences for the older adult sample. Since the older adult population has had 50 additional years of life experience, they have also had 50 years to diverge in education and experience. Table 1 illustrates that while the education level of the older adults was somewhat higher than that of younger adults, so was the variability in education. The older adults may have, beyond education, differing experiences with the specific products and classes of products represented in these norms. Over the last 50 years, it is possible that some of the participants have been exposed repeatedly to the dangers of one of these products, while others have not. The increase in time for divergent experiences can be cited as another potential source of differential variability.

Finally, some of the age related differences between products were, at least in part, driven by categories of non hazards. While consistent responses in a given hazard category indicates a coherent norm, consistent non-hazard responses may indicate the opposite. If, instead of a single salient hazard, older adults responded most frequently with a non-hazard for a given product, it might indicate they did not have immediate access to that perceived hazard. As such, the inclusion of non-hazard categories may conceal additional indications of increased variability in older adults. A more strict criteria, instruction, or re-evaluation of those non-hazard categories such as incomplete thought, warnings or instruction, misc. non hazard, and incomplete thought might lead to an increased consistency that might reduce the number of products demonstrating age related differences.

Applications of the Data Tables

The data collected here have been analyzed and presented in a manner intended not just to illustrate patterns, but to allow the information to be used in warnings system research and design. As such, it is important to make a few final notes about using these tables. The techniques employed in collecting this data were applied to develop a norm for responses to a very specific type of stimuli, and some caveats are in order relating to their generalizability.

First, it is not clear that the three top hazards can necessarily be thought of as a grouping that reflects the level of complexity implied by the ordered combinations of responses. That is, based on the current data, it would be inappropriate to state, without presenting each case individually, that the top three hazards represent a combination of hazards uniquely perceived to belong to a given product. One goal of establishing the top

three most often listed hazards for a product is that these hazards, when taken as a set in order, present the defining hazards associated with the product by participants.

Unfortunately, unless the same participants are providing multiple hazards in a similar order, it is possible to have a pattern of hazard combinations that result from large numbers of individuals choosing specific hazards separately.

That is, it may be the case that while the top three hazards for gasoline are fire hazard, explosion hazard, and inhaled poison, each of these hazards was listed by different individuals. In this instance, individual participants would have considered only one of these hazards to be the primary hazard for gasoline, and it may be that deciding on one of these hazards is mutually exclusive to another. Individuals for whom only the fire hazard of gasoline comes to mind are not likely to simply have it rank above a hazard they did not mention, such as inhaled toxicity. In fact, in a large sample of individuals, with an open-ended response method, a situation may arise where the hazard with the largest frequency was never considered as a hazard by a significant portion of the population (for products with high hazard variability, this portion can actually be the majority of participants). One possible remedy might be to create an index that weights hazards based not only on total frequency, but also based on the number of instances within that frequency where the hazard appeared 1st. Additionally, the correlation between certain hazards could also be examined, to determine how the perception of one hazard predicts the presence or absence of another.

One final point to consider is that this was impoverished stimuli, meant to elicit responses based entirely on a short piece of text. Therefore, the high level of miscellaneous non hazard responses to a product such as chairs w/wheels may be for a

different reason than that of carpet, where the responses seem to indicate a lack of available hazards. In the case of chair with wheels (or stove cooking ‘eye’), participants may actually not have enough information in this basic presentation of stimuli to know what the product is. Therefore, they may decline to respond, or only generate generic, product class responses. If a participant cannot identify the product, but understands that it is part of an oven, it is not unreasonable for that participant to list hazards related to an oven. One of the intents of this study was to establish participant responses to the impoverished product descriptions used in warning research stimuli. These products illustrate the effect that even short product descriptions have on hazard perception.

The purpose of collecting these norms was both to gain an insight into the hazard perceptions of individuals across different age groups, and to provide stimulus norms for future warnings research. Greater age related differences were found than anticipated, illustrating the necessity for investigation into hazard perception differences across the lifespan. The scale of data collected, the collection methods used, and the range of products and participants all support the utility of this data set for both purposes.

APPENDIX A

EXAMPLE PARTICIPANT PACKET PAGE; PRODUCTS AND PRODUCT GROUPS

For each product, put down as many hazards as you can, in the order which you think of them. **A hazard is something that can cause the user or someone else to be hurt.**

Product: Light Bulb

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

Table 2 – Stimuli Products and Categories

Chemical	Small Appliances	Major Appliances
All-purpose cleaner	Blender	Chipper Shredder
Bleach	Coffee maker	Chain saw
Ammonia	Curling Iron	Gas grill
Glass cleaner	Food processor	Gas stove
	Hair Dryers	Gas water heater
Bug spray	Halogen lamp	Lawn edger
Dishwashing detergent	Heating pads	Hedge trimmer
Drain Cleaner	Light Bulb	Kitchen oven
Furniture polish	Paper shredder	Lawnmower
Antiseptic cleanser	Space heater	Stove cooking 'eye'
Hair shampoo/	Toaster	Nail gun
Metal polish	Treadmill	Circular saw
Soap		Power saw
Gasoline		Grinder
Electrical	OTC Drug	Misc.
Electric blanket	Allergy/sinus medicine	Aluminum cans
Electric can opener	Pain reliever	Bedspread
Electric fan		Carpet
Electric grill		Chairs w/ wheels
Electric heater		Fireplace
Electric iron		Gun
Electric knife	Tool	Glass bottles
Electric stove	Hand saw	Horizontal blinds
Electrical outlet	Nails	Swimming pool
Electrical wires	Axe	Tile floors
Extension cord	Knife	Thermometer
Wires on floor	Scissors	Plastic bag
		Shower
		Ladders

APPENDIX B

EXPLANATIONS OF PRODUCT HAZARD AND NON-HAZARD CATEGORIES

Table 3 – Hazard Categories and Descriptions

Hazards	Description of Category
Alcohol Interaction	Essentially any mention of a combination of alcohol with a product as uniquely dangerous (reserved mostly for drugs)
Allergic Reaction	Mention of allergic reaction, allergic rash or any variation where allergy (or special sensitivity) is specifically mentioned
Blunt Trauma	Object striking someone, with the exception that if it is flying, can be 'Flying debris'
Burn (Chemical)	Used for when burn is listed for product in the chemical class, or for when participant response is chemical burn
Burn (Contains hot liquid)	Scalds, burns from hot water, or any other heated liquid (such as wax)
Burn (Heat)	Generally any burn not covered by the other categories
Burn (Hot gas)	Burns from steam, or from other hot gases
Skin Damage	Permanent damage to skin, used in any instance where damage is indicated but Cut or Burn (Chemical) are not appropriate
Explosion Hazard	Any hazard such as "can explode"
Skin Irritation	Less severe rating than skin damage, often participant puts "skin irritation" directly
Cutting Hazard	
Drowning Hazard	Inhaling liquid to the point of death
Drug Interaction	Essentially any mention of a combination of other drugs with a product as uniquely dangerous (reserved mostly for drugs)
Electric shock	Electric shock that does not kill
Electrocution	Death by electric shock (usually participant writes "electrocution")
Eye Damage	Permanent damage to the eyes, one exception is when 'Flying debris' is part of the hazard description, this is counted as 'Flying debris'. In instances where a participant lists "Flying debris" more than once, in order to specify 'Eye damage', the hazard is counted as "Eye damage."
Eye Irritation	Impermanent damage to the eyes, or 'burning', 'itching', or swelling of the eyes
Can Fall off Object	User can fall off of the object (examples: ladder, skateboard)
Can Fall on User	No explanation required
Fire Hazard	No explanation required

Fire Hazard (Building)	For when the fire hazard is specified to be the destruction or burning of a building; included because participants often list fire hazards twice, once for setting a house or building on fire. This is not simply included under 'hazardous to property' because a house fire potentially suggests danger to people.
Flying Debris	Any object that causes injury by being thrown up into a person. In cases where it is listed twice, once with a specific injury such as 'Eye damage', the second time is listed with that specific hazard
Hearing Damage	Any indication of hearing damage
Induces Drowsiness	No explanation required
Infection	Any indication of illness or injury from infectious agents; used significantly for participants listing "tetanus"
Overdose	No explanation required
Oxygen Deprivation (Gas)	Oxygen displacement by another gas results in suffocation
Oxygen Deprivation (Liquid)	Inhaling liquid to the point of oxygen deprivation, without dying
Oxygen Deprivation (Solid)	Oxygen deprivation by choking
Can Pinch Finger	Pinch or trap finger
Poison (Contact)	Poisoning by contact to skin, open wounds or eyes
Poison (Ingested)	Poison without any specification, or poison as specified as ingested
Poison (Inhaled)	Inhaled poison
Severed Limb	Severed limbs, including severed fingers
Slipping Hazard	No explanation required
Stabbing or Puncture Hazard	No explanation required
Strangulation Hazard	No explanation required
Suffocation Hazard	Suffocation by manual, external blockage of air passages (for example, a plastic bag or bedspread)
Tripping Hazard	No explanation required

Non Hazards	Description of Category
Consequence	Subject details what will happen to user, but does not explain how it might occur. Does not apply to hazards where the cause is apparent from the result (for example, “death” can conceivably be brought about by a number of possible causes, potentially requiring a significant inference. Whereas there are not a significant number of ways one can be 'cut' with a knife or broken glass)
No Data	Blank first responses, or any responses that indicate no response (for example "I don't know")
Hazardous to Property	Damage to property and not injury to a person
Incomplete Thought	Begins to describe a hazard but fails to explain how the product can injure a user (for example "dripping wax" would be a hazard if finished with "can burn"; or "not seen in food" would be a hazard if part of "can be poisonous if not seen in food")
Long Term Damage	The instructions provide that participants respond with immediate hazards, this category is for responses that violate this instruction (for example "may cause cancer")
Misc. Non-hazard	An quality of the product that will not necessarily harm the user, or an intentional misuse of an object (for example "metal is heavy", "can be used as a weapon", "can be used to kill someone")
Warning or Instruction	Participant gives specific details of what to do or not to do with product, but does not mention the hazard being avoided (for example "keep out of reach of children")

APPENDIX C

TABLES OF SURVEY RESULTS AND ANALYSIS

Table 4 – Total Number of Hazards Listed Per Product

Product	Number of Hazards	Product	Number of Hazards
All_purpose cleaner	360	Glass bottles	232
Allergy_sinus medicine	253	Glass cleaner	313
Aluminum cans	218	Grinder	274
Ammonia	355	Gun	356
Antiseptic cleanser	284	Hair Dryers	307
Axe	264	Hair shampoo	269
Bedsread	160	Halogen lamp	273
Bleach	373	Hand saw	237
Blender	282	Heating pads	253
Bug spray	379	Hedge trimmer	285
Candles	355	Horizontal blinds	203
Carpet	220	Kitchen oven	273
Chain saw	332	Knife	278
Chairs w_wheels	267	Ladders	341
Chipper Shredder	276	Lawn edger	301
Circular saw	293	Lawnmower	330
Coffee maker	320	Light Bulb	333
Curling Iron	324	Matches	312
Dishwashing detergent	295	Metal polish	289
Drain Cleaner	346	Nail gun	244
Electric blanket	308	Nails	294
Electric can opener	290	Pain reliever	305
Electric fan	323	Paper shredder	247
Electric grill	286	Plastic bag	215
Electric heater	317	Power saw	293
Electric iron	355	Roller skate	256
Electric knife	288	Scissors	270
Electric stove	280	Shower	311
Electrical outlet	263	Skateboard	308
Electrical wires	301	Soap	274
Extension cord	313	Space heater	280
Fireplace	354	Step stool	251
Food processor	247	Stove cooking eye	213
Footstool	249	Swimming pool	361
Furniture polish	334	Thermometer	281
Gas grill	348	Tile floors	226
Gas stove	333	Toaster	293
Gas water heater	302	Treadmill	267
Gasoline	369	Wires on floor	297
		Total	22761

Table 5 – Most Frequently Listed Hazards by Product Combined Across Age Group

Product	Hazard	Hazard	Hazard
Allergy/sinus medicine	Misc. Non-hazard	Overdose	Induces Drowsiness
All-purpose cleaner	Poison (Ingested)	Poison (Inhaled)	Skin Irritation
Aluminum cans	Cutting Hazard	Explosion Hazard	Misc. Non-hazard
Ammonia	Poison (Ingested)	Poison (Inhaled)	Eye Irritation
Antiseptic cleanser	Poison (Ingested)	Skin Irritation	Eye Irritation
Axe	Cutting Hazard	Incomplete Thought	Misc. Non-hazard
Bedspread	Suffocation Hazard	Fire Hazard	Tripping Hazard
Bleach	Poison (Ingested)	Poison (Inhaled)	Eye Irritation
Blender	Cutting Hazard	Electric shock	Incomplete Thought
Bug spray	Poison (Ingested)	Poison (Inhaled)	Incomplete Thought
Candles	Fire Hazard	Burn (Heat)	Burn (Contains hot liquid)
Carpet	Misc. Non-hazard	Tripping Hazard	Fire Hazard
Chain saw	Cutting Hazard	Incomplete Thought	Misc. Non-hazard
Chairs w/ wheels	Misc. Non-hazard	Can Fall off Object	Incomplete Thought
Chipper Shredder	Incomplete Thought	Flying Debris	Cutting Hazard
Circular saw	Cutting Hazard	Severed Limb	Incomplete Thought
Coffee maker	Burn (Contains hot liquid)	Burn (Heat)	Fire Hazard
Curling Iron	Burn (Heat)	Electric shock	Fire Hazard
Dishwashing detergent	Poison (Ingested)	Skin Irritation	Incomplete Thought
Drain Cleaner	Poison (Ingested)	Poison (Inhaled)	Eye Irritation
Electric blanket	Fire Hazard	Electric shock	Burn (Heat)
Electric can opener	Cutting Hazard	Electric shock	Incomplete Thought
Electric fan	Electric shock	Cutting Hazard	Misc. Non-hazard
Electric grill	Burn (Heat)	Fire Hazard	Electric shock
Electric heater	Fire Hazard	Burn (Heat)	Electric shock
Electric iron	Burn (Heat)	Fire Hazard	Electric shock
Electric knife	Cutting Hazard	Electric shock	Incomplete Thought
Electric stove	Burn (Heat)	Fire Hazard	Electric shock
Electrical outlet	Electric shock	Fire Hazard	Incomplete Thought
Electrical wires	Electric shock	Fire Hazard	Tripping Hazard
Extension cord	Tripping Hazard	Electric shock	Fire Hazard
Fireplace	Fire Hazard	Burn (Heat)	Incomplete Thought
Food processor	Cutting Hazard	Electric shock	Incomplete Thought
Footstool	Can Fall off Object	Tripping Hazard	Incomplete Thought
Furniture polish	Poison (Ingested)	Poison (Inhaled)	Fire Hazard
Gas grill	Burn (Heat)	Explosion Hazard	Fire Hazard
Gas stove	Fire Hazard	Burn (Heat)	Explosion Hazard
Gas water heater	Explosion Hazard	Fire Hazard	Incomplete Thought
Gasoline	Fire Hazard	Explosion Hazard	Poison (Inhaled)
Glass bottles	Cutting Hazard	Incomplete Thought	Misc. Non-hazard
Glass cleaner	Poison (Ingested)	Eye Irritation	Incomplete Thought
Grinder	Incomplete Thought	Cutting Hazard	Flying Debris
Gun	Consequence	Misc. Non-hazard	Warning or Instruction

Table 5 Continued

Product	Hazard	Hazard	Hazard
Hair Dryers	Burn (Heat)	Electric shock	Fire Hazard
Hair shampoo	Eye Irritation	Poison (Ingested)	Slipping Hazard
Halogen lamp	Fire Hazard	Burn (Heat)	Electric shock
Hand saw	Cutting Hazard	Incomplete Thought	Misc. Non-hazard
Heating pads	Burn (Heat)	Fire Hazard	Electric shock
Hedge trimmer	Cutting Hazard	Electric shock	Misc. Non-hazard
Horizontal blinds	Oxygen Deprivation (Solid)	Can Fall on User	Cutting Hazard
Kitchen oven	Burn (Heat)	Fire Hazard	Incomplete Thought
Knife	Cutting Hazard	Stabbing or Puncture Hazard	Warning or Instruction
Ladders	Can Fall off Object	Can Fall on User	Can Fall on User
Lawn edger	Cutting Hazard	Incomplete Thought	Flying Debris
Lawnmower	Incomplete Thought	Cutting Hazard	Flying Debris
Light Bulb	Cutting Hazard	Burn (Heat)	Electric shock
Matches	Fire Hazard	Burn (Heat)	Incomplete Thought
Metal polish	Poison (Ingested)	Skin Irritation	Poison (Inhaled)
Nail gun	Incomplete Thought	Misc. Non-hazard	Stabbing or Puncture Hazard
Nails	Stabbing or Puncture Hazard	Incomplete Thought	Misc. Non-hazard
Pain reliever	Misc. Non-hazard	Overdose	
Paper shredder	Cutting Hazard	Electric shock	Incomplete thought
Plastic bag	Suffocation Hazard	Oxygen Deprivation (Solid)	Misc. Non-hazard
Power saw	Cutting Hazard	Incomplete Thought	Severed Limb
Roller skate	Misc. Non-hazard	Can Fall off Object	Consequence
Scissors	Cutting Hazard	Stabbing or Puncture Hazard	Eye Damage
Shower	Slipping Hazard	Burn (Contains hot liquid)	Warning or Instruction
Skateboard	Warning or Instruction	Can Fall off Object	Misc. Non-hazard
Soap	Slipping Hazard	Eye Irritation	Poison (Ingested)
Space heater	Fire Hazard	Burn (Heat)	Misc. Non-hazard
Step stool	Can Fall off Object	Incomplete Thought	Tripping Hazard
Stove cooking 'eye'	Burn (Heat)	Fire Hazard	Incomplete Thought
Swimming pool	Drowning Hazard	Misc. Non-hazard	Incomplete Thought
Thermometer	Incomplete Thought	Cutting Hazard	Poison (Ingested)
Tile floors	Slipping Hazard	Incomplete Thought	Cutting Hazard
Toaster	Burn (Heat)	Fire Hazard	Electric shock
Treadmill	Misc. Non-hazard	Can Fall off Object	Incomplete Thought
Wires on floor	Tripping Hazard	Electric shock	Fire Hazard

Table 6 – Most Frequently Listed Hazards by Product for Younger Adults

Product	Hazard	Hazard	Hazard
Allergy/sinus medicine	Misc. Non Hazard	Overdose	Induces Drowsiness
All-purpose cleaner	Poison (Ingested)	Poison (Inhaled)	Eye Irritation
Aluminum cans	Cutting Hazard	Explosion Hazard	Misc. Non Hazard
Ammonia	Poison (Ingested)	Poison (Inhaled)	Eye Irritation
Antiseptic cleanser	Poison (Ingested)	Eye Irritation	Skin Irritation
Axe	Cutting Hazard	Misc. Non Hazard	Severed Limb(s)
Bedspread	Suffocation Hazard	Fire Hazard	Misc. Non Hazard
Bleach	Poison (Ingested)	Poison (Inhaled)	Eye Irritation
Blender	Cutting Hazard	Electric Shock	Incomplete Thought
Bug spray	Poison (Ingested)	Poison (Inhaled)	Eye Irritation
Candles	Burn (Heat)	Fire Hazard	Burn (Contains hot liquid)
Carpet	Misc. Non Hazard	Fire Hazard	Tripping Hazard
Chain saw	Cutting Hazard	Severed Limb(s)	Misc. Non Hazard
Chairs w/ wheels	Misc. Non Hazard	Falling Hazard	Blunt Trauma
Chipper Shredder	Incomplete Thought	Cutting Hazard	Cutting Hazard
Circular saw	Cutting Hazard	Severed Limb(s)	Incomplete Thought
Coffee maker	Burn (Heat)	Burn (Contains hot liquid)	Electric Shock
Curling Iron	Burn (Heat)	Fire Hazard	Electric Shock
Dishwashing detergent	Poison (Ingested)	Eye Irritation	Skin Irritation
Drain Cleaner	Poison (Ingested)	Eye Irritation	Poison (Inhaled)
Electric blanket	Fire Hazard	Electric Shock	Burn (Heat)
Electric can opener	Cutting Hazard	Electric Shock	Incomplete Thought
Electric fan	Electric Shock	Severed Limb(s)	Cutting Hazard
Electric grill	Burn (Heat)	Fire Hazard	Electric Shock
Electric heater	Fire Hazard	Burn (Heat)	Electric Shock
Electric iron	Burn (Heat)	Fire Hazard	Electric Shock
Electric knife	Cutting Hazard	Electric Shock	Fire Hazard
Electric stove	Burn (Heat)	Fire Hazard	Electric Shock
Electrical outlet	Electric Shock	Fire Hazard	Electrocution
Electrical wires	Electric Shock	Fire Hazard	Tripping Hazard
Extension cord	Electric Shock	Tripping Hazard	Fire Hazard
Fireplace	Burn (Heat)	Fire Hazard	Incomplete Thought
Food processor	Cutting Hazard	Electric Shock	Misc. Non Hazard
Footstool	Falling Hazard	Tripping Hazard	Incomplete Thought
Furniture polish	Poison (Ingested)	Poison (Inhaled)	Fire Hazard
Gas grill	Burn (Heat)	Explosion Hazard	Fire Hazard
Gas stove	Fire Hazard	Burn (Heat)	Explosion Hazard
Gas water heater	Explosion Hazard	Fire Hazard	Burn (Contains hot liquid)
Gasoline	Fire Hazard	Incomplete Thought	Poison (Ingested)
Glass bottles	Cutting Hazard	Incomplete Thought	Misc. Non Hazard
Glass cleaner	Poison (Ingested)	Eye Irritation	Eye Damage
Grinder	Incomplete Thought	Cutting Hazard	Flying Debris
Gun	Consequence	Warning or Instruction	Explosion Hazard

Table 6 Continued

Product	Hazard	Hazard	Hazard
Hair Dryers	Burn (Heat)	Electric Shock	Fire Hazard
Hair shampoo	Eye Irritation	Poison (Ingested)	Slipping Hazard
Halogen lamp	Burn (Heat)	Fire Hazard	Incomplete Thought
Hand saw	Cutting Hazard	Incomplete Thought	Flying Debris
Heating pads	Burn (Heat)	Fire Hazard	Electric Shock
Hedge trimmer	Cutting Hazard	Misc. Non Hazard	Incomplete Thought
Horizontal blinds	Oxygen Deprivation (Solid)	Can Fall on Someone	Warning or Instruction
Kitchen oven	Burn (Heat)	Fire Hazard	Incomplete Thought
Knife	Cutting Hazard	Warning or Instruction	Consequence
Ladders	Falling Hazard	Warning or Instruction	Can Fall on Someone
Lawn edger	Cutting Hazard	Incomplete Thought	Flying Debris
Lawnmower	Incomplete Thought	Cutting Hazard	Flying Debris
Light Bulb	Cutting Hazard	Burn (Heat)	Electric Shock
Matches	Fire Hazard	Burn (Heat)	Incomplete Thought
Metal polish	Poison (Ingested)	Skin Irritation	Fire Hazard
Nail gun	Misc. Non Hazard	Stab/Puncture Hazard	Incomplete Thought
Nails	Stab/Puncture Hazard	Incomplete Thought	Misc. Non Hazard
Pain reliever	Misc. Non Hazard	Overdose	Incomplete Thought
Paper shredder	Cutting Hazard	Incomplete Thought	Electric Shock
Plastic bag	Suffocation Hazard	Oxygen Deprivation (Solid)	Misc. Non Hazard
Power saw	Cutting Hazard	Incomplete Thought	Severed Limb(s)
Roller skate	Misc. Non Hazard	Falling Hazard	Tripping Hazard
Scissors	Cutting Hazard	Stab/Puncture Hazard	Eye Damage
Shower	Slipping Hazard	Burn (Contains hot liquid)	Warning or Instruction
Skateboard	Warning or Instruction	Falling Hazard	Consequence
Soap	Slipping Hazard	Poison (Ingested)	Eye Irritation
Space heater	Fire Hazard	Burn (Heat)	Electric Shock
Step stool	Falling Hazard	Tripping Hazard	Incomplete Thought
Stove cooking 'eye'	Burn (Heat)	Fire Hazard	No Data
Swimming pool	Drowning Hazard	Misc. Non Hazard	Incomplete Thought
Thermometer	Incomplete Thought	Cutting Hazard	Poison (Ingested)
Tile floors	Slipping Hazard	Incomplete Thought	Cutting Hazard
Toaster	Burn (Heat)	Fire Hazard	Electric Shock
Treadmill	Falling Hazard	Misc. Non Hazard	Incomplete Thought
Wires on floor	Tripping Hazard	Electric Shock	Fire Hazard

Table 7 –Most Frequently Listed Hazards by Product for Older Adults

Products	Hazard	Hazard	Hazard
Allergy/sinus medicine	Misc. Non Hazard	Overdose	Incomplete Thought
All-purpose cleaner	Poison (Ingested)	Poison (Inhaled)	Skin Irritation
Aluminum cans	Cutting Hazard	Incomplete Thought	Misc. Non Hazard
Ammonia	Poison (Inhaled)	Poison (Ingested)	Eye Irritation
Antiseptic cleanser	Poison (Ingested)	Skin Irritation	Incomplete Thought
Axe	Cutting Hazard	Incomplete Thought	Misc. Non Hazard
Bedspread	Suffocation Hazard	Tripping Hazard	Misc. Non Hazard
Bleach	Poison (Ingested)	Poison (Inhaled)	Burn (Chemical)
Blender	Cutting Hazard	Incomplete Thought	Electric Shock
Bug spray	Incomplete Thought	Poison (Inhaled)	Poison (Ingested)
Candles	Fire Hazard	Burn (Heat)	Burn (Contains hot liquid)
Carpet	Tripping Hazard	Misc. Non Hazard	Slipping Hazard
Chain saw	Cutting Hazard	Incomplete Thought	Misc. Non Hazard
Chairs w/ wheels	Misc. Non Hazard	Falling Hazard	Incomplete Thought
Chipper Shredder	Flying Debris	Flying Debris	Severed Limb(s)
Circular saw	Cutting Hazard	Incomplete Thought	Electric Shock
Coffee maker	Fire Hazard	Burn (Contains hot liquid)	Incomplete Thought
Curling Iron	Burn (Heat)	Misc. Non Hazard	Electric Shock
Dishwashing detergent	Skin Irritation	Skin Irritation	Poison (Ingested)
Drain Cleaner	Poison (Ingested)	Poison (Inhaled)	Incomplete Thought
Electric blanket	Fire Hazard	Burn (Heat)	Electric Shock
Electric can opener	Cutting Hazard	Electric Shock	Incomplete Thought
Electric fan	Misc. Non Hazard	Incomplete Thought	Electric Shock
Electric grill	Burn (Heat)	Fire Hazard	Electric Shock
Electric heater	Fire Hazard	Burn (Heat)	Electric Shock
Electric iron	Burn (Heat)	Fire Hazard	Electric Shock
Electric knife	Cutting Hazard	Electric Shock	Incomplete Thought
Electric stove	Fire Hazard	Burn (Heat)	Electric Shock
Electrical outlet	Electric Shock	Fire Hazard	Incomplete Thought
Electrical wires	Electric Shock	Fire Hazard	Tripping Hazard
Extension cord	Tripping Hazard	Electric Shock	Electric Shock
Fireplace	Fire Hazard	Incomplete Thought	Burn (Heat)
Food processor	Cutting Hazard	Incomplete Thought	Electric Shock
Footstool	Falling Hazard	Tripping Hazard	Misc. Non Hazard
Furniture polish	Poison (Ingested)	Poison (Inhaled)	Skin Irritation
Gas grill	Explosion Hazard	Burn (Heat)	Fire Hazard
Gas stove	Explosion Hazard	Fire Hazard	Poison (Inhaled)
Gas water heater	Explosion Hazard	Incomplete Thought	Fire Hazard
Gasoline	Explosion Hazard	Fire Hazard	Poison (Inhaled)
Glass bottles	Cutting Hazard	Misc. Non Hazard	Incomplete Thought
Glass cleaner	Incomplete Thought	Poison (Ingested)	Poison (Inhaled)
Grinder	Incomplete Thought	Cutting Hazard	Flying Debris
Gun	Misc. Non Hazard	Incomplete Thought	Explosion Hazard
Hair Dryers	Burn (Heat)	Electric Shock	Misc. Non Hazard

Table 7 Continued

Product	Hazard	Hazard	Hazard
Hair shampoo	Eye Irritation	Incomplete Thought	Poison (Ingested)
Halogen lamp	Fire Hazard	Burn (Heat)	Explosion Hazard
Hand saw	Cutting Hazard	Misc. Non Hazard	Incomplete Thought
Heating pads	Burn (Heat)	Fire Hazard	Electric Shock
Hedge trimmer	Cutting Hazard	Electric Shock	Flying Debris
Horizontal blinds	Cutting Hazard	Incomplete Thought	Can Fall on Someone
Kitchen oven	Burn (Heat)	Fire Hazard	Explosion Hazard
Knife	Cutting Hazard	Incomplete Thought	Misc. Non Hazard
Ladders	Incomplete Thought	Falling Hazard	Misc. Non Hazard
Lawn edger	Cutting Hazard	Flying Debris	Incomplete Thought
Lawnmower	Incomplete Thought	Flying Debris	Cutting Hazard
Light Bulb	Cutting Hazard	Burn (Heat)	Electric Shock
Matches	Fire Hazard	Burn (Heat)	Incomplete Thought
Metal polish	Poison (Ingested)	Incomplete Thought	Skin Irritation
Nail gun	Incomplete Thought	Stab/Puncture Hazard	Eye Damage
Nails	Misc. Non Hazard	Incomplete Thought	Stab/Puncture Hazard
Pain reliever	Misc. Non Hazard	Overdose	Incomplete Thought
Paper shredder	Cutting Hazard	Electric Shock	Incomplete Thought
Plastic bag	Suffocation Hazard	Incomplete Thought	Oxygen Deprivation (Solid)
Power saw	Cutting Hazard	Cutting Hazard	Severed Limb(s)
Roller skate	Falling Hazard	Consequence	Misc. Non Hazard
Scissors	Cutting Hazard	Stab/Puncture Hazard	Misc. Non Hazard
Shower	Slipping Hazard	Burn (Contains hot liquid)	Misc. Non Hazard
Skateboard	Misc. Non Hazard	Incomplete Thought	Falling Hazard
Soap	Slipping Hazard	Eye Irritation	Skin Irritation
Space heater	Fire Hazard	Burn (Heat)	Poison (Inhaled)
Step stool	Falling Hazard	Incomplete Thought	Misc. Non Hazard
Stove cooking 'eye'	Burn (Heat)	Fire Hazard	Incomplete Thought
Swimming pool	Drowning Hazard	Misc. Non Hazard	Incomplete Thought
Thermometer	Incomplete Thought	Cutting Hazard	Poison (Ingested)
Tile floors	Slipping Hazard	Misc. Non Hazard	Incomplete Thought
Toaster	Burn (Heat)	Fire Hazard	Electric Shock
Treadmill	Misc. Non Hazard	Falling Hazard	Incomplete Thought
Wires on floor	Tripping Hazard	Fire Hazard	Electric Shock

Table 8 – Hazard Most Often Listed First, by Product and Age

Products	Combined	Younger Adults	Older Adults
Allergy/sinus medicine	Overdose	Overdose	Misc. Non Hazard
All-purpose cleaner	Poison (Ingested)	Poison (Ingested)	Poison (Ingested)
Aluminum cans	Cutting Hazard	Cutting Hazard	Cutting Hazard
Ammonia	Poison (Ingested)	Poison (Ingested)	Poison (Inhaled)
Antiseptic cleanser	Poison (Ingested)	Poison (Ingested)	Poison (Ingested)
Axe	Cutting Hazard	Cutting Hazard	Cutting Hazard
Bedspread	Suffocation Hazard	Suffocation Hazard	Suffocation Hazard
Bleach	Poison (Ingested)	Poison (Ingested)	Poison (Ingested)
Blender	Cutting Hazard	Cutting Hazard	Cutting Hazard
Bug spray	Poison (Ingested)	Poison (Ingested)	Incomplete Thought
Candles	Burn (Heat)	Fire Hazard	Burn (Contains hot liquid)
Carpet	Fire Hazard	Fire Hazard	Tripping Hazard
Chain saw	Cutting Hazard	Cutting Hazard	Incomplete Thought
Chairs w/ wheels	Misc. Non Hazard	Misc. Non Hazard	Misc. Non Hazard
Chipper Shredder	Cutting Hazard	Cutting Hazard	Flying Debris
Circular saw	Cutting Hazard	Cutting Hazard	Electric Shock
Coffee maker	Burn (Heat)	Burn (Heat)	Incomplete Thought
Curling Iron	Burn (Heat)	Burn (Heat)	Electric Shock
Dishwashing detergent	Poison (Ingested)	Poison (Ingested)	Incomplete Thought
Drain Cleaner	Poison (Ingested)	Poison (Ingested)	Poison (Ingested)
Electric blanket	Fire Hazard	Fire Hazard	Fire Hazard
Electric can opener	Cutting Hazard	Cutting Hazard	Cutting Hazard
Electric fan	Electric Shock	Severed Limb(s)	Fire Hazard
Electric grill	Burn (Heat)	Burn (Heat)	Burn (Heat)
Electric heater	Fire Hazard	Fire Hazard	Burn (Heat)
Electric iron	Burn (Heat)	Burn (Heat)	Fire Hazard
Electric knife	Cutting Hazard	Cutting Hazard	Cutting Hazard
Electric stove	Burn (Heat)	Burn (Heat)	Fire Hazard
Electrical outlet	Electric Shock	Electric Shock	Fire Hazard
Electrical wires	Electric Shock	Electric Shock	Fire Hazard
Extension cord	Tripping Hazard	Tripping Hazard	Tripping Hazard
Fireplace	Fire Hazard	Fire Hazard	Poison (Inhaled)
Food processor	Cutting Hazard	Cutting Hazard	Incomplete Thought
Footstool	Falling Hazard	Falling Hazard	Falling Hazard
Furniture polish	Poison (Ingested)	Poison (Ingested)	Poison (Inhaled)
Gas grill	Explosion Hazard	Explosion Hazard	Burn (Heat)
Gas stove	Explosion Hazard	Explosion Hazard	Burn (Heat)
Gas water heater	Explosion Hazard	Explosion Hazard	Explosion Hazard
Gasoline	Fire Hazard	Fire Hazard	Poison (Ingested)
Glass bottles	Cutting Hazard	Cutting Hazard	Cutting Hazard
Glass cleaner	Poison (Ingested)	Poison (Ingested)	Incomplete Thought
Grinder	Incomplete Thought	Incomplete Thought	Incomplete Thought

Table 8 Continued

Products	Combined	Younger Adults	Older Adults
Gun	Consequence	Consequence	Misc. Non Hazard
Hair Dryers	Electric Shock	Electric Shock	Burn (Heat)
Hair shampoo	Eye Irritation	Eye Irritation	Eye Irritation
Halogen lamp	Fire Hazard	Burn (Heat)	Fire Hazard
Hand saw	Cutting Hazard	Cutting Hazard	Cutting Hazard
Heating pads	Burn (Heat)	Burn (Heat)	Burn (Heat)
Hedge trimmer	Cutting Hazard	Cutting Hazard	Flying Debris
Horizontal blinds	Can Fall on Someone	Oxygen Deprivation (Solid)	Cutting Hazard
Kitchen oven	Burn (Heat)	Burn (Heat)	Fire Hazard
Knife	Cutting Hazard	Cutting Hazard	Cutting Hazard
Ladders	Falling Hazard	Falling Hazard	Incomplete Thought
Lawn edger	Cutting Hazard	Cutting Hazard	Cutting Hazard
Lawnmower	Cutting Hazard	Cutting Hazard	Incomplete Thought
Light Bulb	Cutting Hazard	Cutting Hazard	Incomplete Thought
Matches	Fire Hazard	Fire Hazard	Burn (Heat)
Metal polish	Poison (Ingested)	Poison (Ingested)	Poison (Ingested)
Nail gun	Incomplete Thought	Stab/Puncture Hazard	Incomplete Thought
Nails	Stab/Puncture Hazard	Stab/Puncture Hazard	Incomplete Thought
Pain reliever	Overdose	Overdose	Misc. Non Hazard
Paper shredder	Cutting Hazard	Cutting Hazard	Cutting Hazard
Plastic bag	Suffocation Hazard	Suffocation Hazard	Suffocation Hazard
Power saw	Cutting Hazard	Cutting Hazard	Cutting Hazard
Roller skate	Falling Hazard	Falling Hazard	Misc. Non Hazard
Scissors	Cutting Hazard	Cutting Hazard	Cutting Hazard
Shower	Slipping Hazard	Slipping Hazard	Burn (Contains hot liquid)
Skateboard	Falling Hazard	Falling Hazard	Misc. Non Hazard
Soap	Eye Irritation	Poison (Ingested)	Eye Irritation
Space heater	Fire Hazard	Fire Hazard	Fire Hazard
Step stool	Falling Hazard	Falling Hazard	Falling Hazard
Stove cooking 'eye'	Burn (Heat)	Burn (Heat)	Burn (Heat)
Swimming pool	Drowning Hazard	Drowning Hazard	Misc. Non Hazard
Thermometer	Incomplete Thought	Incomplete Thought	Incomplete Thought
Tile floors	Slipping Hazard	Slipping Hazard	Slipping Hazard
Toaster	Burn (Heat)	Burn (Heat)	Burn (Heat)
Treadmill	Falling Hazard	Falling Hazard	Misc. Non Hazard
Wires on floor	Tripping Hazard	Tripping Hazard	Tripping Hazard

Table 9 – Number of Responses per Hazard Category

Hazard Category	Number of Appearances	Rank (of 46)
Alcohol Interaction	9	44
Allergic Reaction	128	31
Blunt Trauma	121	32
Burn (Chemical)	106	34
Burn (Contains hot liquid)	264	24
Burn (Heat)	1743	5
Burn (Hot gas)	3	45
Skin Damage	113	33
Explosion Hazard	669	9
Skin Irritation	418	16
Consequence	330	21
Cutting Hazard	1851	4
Drowning Hazard	93	35
Drug Interaction	26	43
Electric shock	1447	6
Electrocution	304	22
Eye Damage	446	15
Eye Irritation	596	11
Can Fall off Object	584	12
Can Fall on User	402	17
Fire Hazard	2288	2
Fire Hazard (Building)	54	38
Flying Debris	369	20
Hazardous to Property	219	26
Hearing Damage	58	37
Incomplete Thought	2381	1
Induces Drowsiness	39	41
Infection	139	29
Long Term Damage	3	46
Misc. Non-hazard	2096	3
No Data	242	25
Overdose	144	28
Oxygen Deprivation (Gas)	46	39
Oxygen Deprivation (Liquid)	45	40
Oxygen Deprivation (Solid)	377	19
Can Pinch Finger	68	36
Poison (Contact)	28	42
Poison (Ingested)	1171	7
Poison (Inhaled)	684	8
Severed Limb	387	18
Slipping Hazard	507	14

Table 9 Continued

Hazard Category	Number of Appearances	Rank (of 46)
Stabbing or Puncture Hazard	299	23
Strangulation Hazard	160	27
Suffocation Hazard	136	30
Tripping Hazard	549	13
Warning or Instruction	619	10

Table 10 – Most Frequently Listed Products by Hazard Combined Across Age

Hazard	Product	Product	Product
Alcohol Interaction	Pain reliever	Allergy/sinus medicine	
Allergic Reaction	Pain reliever	Allergy/sinus medicine	Soap
Blunt Trauma	Chairs w/ wheels	Swimming pool	Footstool
Burn (Chemical)	Bleach	Drain Cleaner	Ammonia
Burn (Contains hot liquid)	Shower	Coffee maker	Candles
Burn (Heat)	Curling Iron	Electric iron	Heating pads
Burn (Hot gas)	Coffee maker		
Skin Damage	Bleach	Grinder	Drain Cleaner
Explosion Hazard	Gas grill	Gas water heater	Gas stove
Skin Irritation	Metal polish / Dishwashing detergent	All-purpose cleaner / Antiseptic cleanser	Bleach
Consequence	Gun	Roller skate	Skateboard
Cutting Hazard	Electric can opener	Knife	Scissors
Drowning Hazard	Swimming pool	Shower	
Drug Interaction	Pain reliever	Allergy/sinus medicine	
Electric shock	Electrical outlet	Electrical wires	Extension cord / Hair dryer
Electrocution	Electrical wires	Electrical outlet	Hair dryer
Eye Damage	Bleach	Scissors	All-purpose cleaner
Eye Irritation	Hair shampoo	Soap	Ammonia
Can Fall off Object	Ladders	Step stool	Footstool
Can Fall on User	Ladders	Electric iron	Horizontal blinds
Fire Hazard	Matches	Electric heater	Space heater
Fire Hazard (Building)	Fireplace	Candles	Matches
Flying Debris	Lawnmower / Chipper Shredder	Lawn edger	Grinder
Hazardous to Property	Electric iron	Candles	Bleach
Hearing Damage	Lawnmower	Lawn edger / Chain saw	Power saw / Chipper Shredder
Incomplete Thought	Thermometer / Grinder	Lawnmower	Nail gun / Nails
Induces Drowsiness	Allergy/sinus medicine	Pain reliever	Shower
Infection	Nails	Swimming pool	Carpet
Long Term Damage	Shower		
Misc. Non-hazard	Chairs w/ wheels	Pain reliever	Roller skate
No Data	Stove cooking 'eye'	Allergy/sinus medicine	Bedsread
Overdose	Pain reliever	Allergy/sinus medicine	
Oxygen Deprivation (Gas)	Gas stove	Fireplace	Candles / Space heater
Oxygen Deprivation (Liquid)	Shower	Swimming pool	Gas water heater
Oxygen Deprivation (Solid)	Horizontal blinds	Plastic bag	Pain reliever
Can Pinch Finger	Electric can opener	Ladders	Horizontal blinds / Gun / Step stool

Table 10 Continued

Hazard	Product	Product	Product
Poison (Contact)	Thermometer / Bug spray / Dishwashing detergent	Furniture polish / Metal polish	All-purpose cleaner / Ammonia / Antiseptic cleanser
Poison (Ingested)	Glass cleaner	Drain Cleaner	Bleach
Poison (Inhaled)	Ammonia	Bug spray	Gasoline
Severed Limb	Circular saw	Power saw	Chain saw
Slipping Hazard	Tile floors	Shower	Soap
Stabbing or Puncture Hazard	Nails	Scissors	Nail gun
Strangulation Hazard	Extension cord	Electrical wires	Wires on floor
Suffocation Hazard	Plastic bag	Bedspread	Electric blanket
Tripping Hazard	Wires on floor	Extension cord	Footstool
Warning or Instruction	Skateboard	Gun	Ladders

Table 11 – Most Frequently Listed Products by Hazard for Younger Adults

Hazard	Product	Product	Product
Alcohol Interaction	Pain reliever	Allergy/sinus medicine	
Allergic Reaction	Pain reliever	Allergy/sinus medicine	Soap
Blunt Trauma	Chairs w/ wheels	Swimming pool	Footstool
Burn (Chemical)	Bleach	All-purpose cleaner	Ammonia / Drain Cleaner
Burn (Contains hot liquid)	Shower	Coffee maker	Candles
Burn (Heat)	Curling Iron	Electric iron / Kitchen oven	Electric stove
Burn (Hot gas)	Coffee maker		
Skin Damage	Bleach	Drain Cleaner	Ammonia
Explosion Hazard	Gas grill	Gas water heater	Gas stove
Skin Irritation	Metal polish	Bleach	Ammonia
Consequence	Gun	Knife	Skateboard
Cutting Hazard	Electric can opener	Knife	Electric knife
Drowning Hazard	Swimming pool		
Drug Interaction	Pain reliever	Allergy/sinus medicine	
Electric shock	Electrical outlet	Electrical wires	Electric fan
Electrocution	Electrical outlet	Electrical wires	Hair Dryers
Eye Damage	Scissors / Bleach	Antiseptic cleanser / All-purpose cleaner	Glass cleaner
Eye Irritation	Hair shampoo	Soap	Bleach
Can Fall off Object	Ladders	Step stool	Footstool
Can Fall on User	Ladders	Electric iron	Horizontal blinds
Fire Hazard	Matches	Gas stove	Electric heater
Fire Hazard (Building)	Fireplace	Candles	Matches / Electric heater
Flying Debris	Lawnmower	Chipper Shredder	Lawn edger / Grinder
Hazardous to Property	Electric iron	Bleach	Candles
Hearing Damage	Lawnmower	Circular saw	Lawn edger
Incomplete Thought	Thermometer	Lawnmower / Gasoline	Nails
Induces Drowsiness	Allergy/sinus medicine	Shower	Candles
Infection	Nails	Swimming pool	Carpet
Long Term Damage	Shower		
Misc. Non-hazard	Chairs w/ wheels	Roller skate	Pain reliever
No Data	Stove cooking 'eye'	Candles / Gun	Bedsread / Chipper Shredder
Overdose	Pain reliever	Allergy/sinus medicine	
Oxygen Deprivation (Gas)	(none with more than 2 instances)		
Oxygen Deprivation (Liquid)	Shower	Swimming pool	
Oxygen Deprivation (Solid)	Horizontal blinds	Plastic bag	Pain reliever
Can Pinch Finger	Ladders	Horizontal blinds / Electric can opener	Gun
Poison (Contact)	Thermometer	Dishwashing detergent	

Table 11 Continued

Hazard	Product	Product	Product
Poison (Ingested)	Glass cleaner	Ammonia	Bleach
Poison (Inhaled)	Ammonia	Furniture polish	Bleach
Severed Limb	Electric fan / Circular saw	Power saw	Chain saw
Slipping Hazard	Shower	Tile floors	Soap
Stabbing or Puncture Hazard	Nails	Nail gun	Scissors
Strangulation Hazard	Extension cord	Electrical wires	Wires on floor
Suffocation Hazard	Plastic bag	Bedspread	Electric blanket
Tripping Hazard	Wires on floor	Extension cord	Footstool
Warning or Instruction	Skateboard	Gun	Ladders

Table 12 – Most Frequently Listed Products by Hazard for Older Adults

Hazard	Product	Product	Product
Alcohol Interaction	(none with instances over 2)		
Allergic Reaction	Pain reliever	Dishwashing detergent	Antiseptic cleanser / Glass cleaner / Soap
Blunt Trauma	Skateboard	Swimming pool	Roller skate
Burn (Chemical)	Bleach	Drain Cleaner	Ammonia
Burn (Contains hot liquid)	Shower	Candles / Coffee maker	Gas water heater
Burn (Heat)	Curling Iron	Electric iron / Heating pads	Toaster
Burn (Hot gas)	No instances		
Skin Damage	Grinder	Metal polish / Bleach	Drain Cleaner / All-purpose cleaner
Explosion Hazard	Gasoline	Gas water heater	Gas grill
Skin Irritation	Dishwashing detergent	All-purpose cleaner	Antiseptic cleanser
Consequence	Roller skate	Skateboard	Gun
Cutting Hazard	Knife	Electric can opener / Scissors	Aluminum cans / Glass bottles
Drowning Hazard	Swimming pool	Shower	
Drug Interaction	Pain reliever	Allergy/sinus medicine (2)	
Electric shock	Electrical outlet	Electrical wires	Electric can opener / Hair Dryers
Electrocution	Electrical wires	Electrical outlet / Wires on floor	Electric blanket
Eye Damage	Bleach	Drain Cleaner	Bug spray / Hair shampoo
Eye Irritation	Hair shampoo	Soap	Ammonia
Can Fall off Object	Ladders	Step stool	Footstool
Can Fall on User	Electric iron / Horizontal blinds	Ladders	Electric fan
Fire Hazard	Matches	Fireplace	Electric heater
Fire Hazard (Building)	(no instances over 2)		
Flying Debris	Chipper Shredder	Lawn edger	Lawnmower
Hazardous to Property	Candles	Electric iron	Nails
Hearing Damage	Chain saw	Power saw / Chipper Shredder / Lawn edger / Lawnmower	
Incomplete Thought	Ladders	Gun	Grinder
Induces Drowsiness	Allergy/sinus medicine	Pain reliever	
Infection	Nails	Swimming pool	Knife
Long Term Damage	(no instances)		
Misc. Non-hazard	Gun	Chairs w/ wheels	Pain reliever
No Data	Allergy/sinus medicine	Carpet	Thermometer / Halogen lamp / Food processor / Bedspread

Table 12 Continued

Hazard	Product	Product	Product
Overdose	Pain reliever	Allergy/sinus medicine	
Oxygen Deprivation (Gas)	Gas stove	Fireplace	Gas water heater / Space heater
Oxygen Deprivation (Liquid)	Swimming pool	Shower (1)	
Oxygen Deprivation (Solid)	Plastic bag	Power saw	Horizontal blinds
Can Pinch Finger	Electric can opener	Paper shredder / Chairs w/ wheels / Step stool (2)	Gun (1)
Poison (Contact)	Bug spray		
Poison (Ingested)	Drain Cleaner	Furniture polish / Bleach	Bug spray / All-purpose cleaner
Poison (Inhaled)	Ammonia	Bug spray	Gasoline
Severed Limb	Power saw / Circular saw	Chipper Shredder / Axe	Chain saw
Slipping Hazard	Tile floors	Shower	Soap
Stabbing or Puncture Hazard	Nails / Scissors	Nail gun	Knife
Strangulation Hazard	Horizontal blinds	Extension cord	Wires on floor
Suffocation Hazard	Plastic bag	Bedsread	Electric blanket
Tripping Hazard	Wires on floor	Extension cord	Carpet
Warning or Instruction	Paper shredder	Gun / Matches / Swimming pool	Step stool

Table 13 – Average Position of Warning & Number of Instances in 1st Position

	Average Rank position*	Std. Deviation	# of Times in First Position	Total number of listings
Alcohol Interaction	2.33	1.22	2	9
Allergic Reaction	2.40	1.27	36	128
Blunt Trauma	2.63	1.57	34	121
Burn (Chemical)	2.68	1.29	24	106
Burn (Contains hot liquid)	2.33	1.23	77	264
Burn (Heat)	2.13	1.23	659	1743
Burn (Hot gas)	3.00	1.00	0	3
Skin Damage	2.47	1.39	32	113
Explosion Hazard	2.54	1.35	176	669
Skin Irritation	2.59	1.34	103	418
Consequence	2.45	1.37	100	330
Cutting Hazard	1.83	1.07	911	1851
Drowning Hazard	1.68	.92	50	93
Drug Interaction	2.46	.94	4	26
Electric Shock	2.29	1.20	428	1447
Electrocution	2.08	1.10	114	304
Eye Damage	2.53	1.19	85	446
Eye Irritation	2.40	1.23	171	596
Falling Hazard	1.80	.99	278	584
Can Fall on Someone	2.74	1.34	70	402
Fire Hazard	2.37	1.32	694	2288
Fire Hazard (Building)	2.37	1.32	17	54
Flying Debris	2.58	1.29	74	369
Hazardous to Property	2.64	1.40	59	219
Hearing Damage	2.90	1.53	14	58
Incomplete Thought	2.33	1.28	781	2381
Induces Drowsiness	2.13	1.23	16	39
Infection	2.62	1.46	37	139
Long Term Damage	3.00	1.00	0	3
Misc. Non Hazard	2.44	1.35	631	2096
No Data	1.63	1.12	107	242
Overdose	1.72	1.00	76	144
Oxygen Deprivation (Gas)	3.09	1.91	12	46
Oxygen Deprivation (Liquid)	2.18	1.17	16	45
Oxygen Deprivation (Solid)	2.73	1.35	77	377
Can Pinch Finger/Limb	2.74	1.24	10	68
Poison (Contact)	2.57	.99	5	28

Table 13 Continued

	Average Rank position*	Std. Deviation	# of Times in First Position	Total number of listings
Poison (Ingested)	2.12	1.26	477	1171
Poison (Inhaled)	2.57	1.37	169	684
Severed Limb(s)	1.72	.98	210	387
Slipping Hazard	2.21	1.24	181	507
Stab/Puncture Hazard	2.17	1.179	99	299
Strangulation Hazard	2.58	1.38	42	160
Suffocation Hazard	1.38	.70	96	136
Tripping Hazard	2.17	1.30	212	549
Warning or Instruction	2.39	1.28	182	619
*The positions are ranked from #1 as listed first, to #7 as listed last.		Total:		7648

Table 14 – Overview of Products with Similar Hazards

Product	Hazard	Hazard	Hazard
All-purpose cleaner	Poison (Ingested)	Poison (Inhaled)	Skin Irritation
Bleach	Poison (Ingested)	Poison (Inhaled)	Eye Irritation
Ammonia	Poison (Ingested)	Poison (Inhaled)	Eye Irritation
Glass cleaner	Poison (Ingested)	Eye Irritation	Incomplete Thought
Electric blanket	Fire Hazard	Electric shock	Burn (Heat)
Heating pad	Burn (Heat)	Fire Hazard	Electric shock
Allergy/sinus medicine	Misc. Non-hazard	Overdose	Induces Drowsiness
Pain reliever	Misc. Non-hazard	Overdose	
Knife	Cutting Hazard	Stabbing or Puncture Hazard	Warning or Instruction
Scissors	Cutting Hazard	Stabbing or Puncture Hazard	Eye Damage
Skateboard	Warning or Instruction	Can Fall off Object	Misc. Non-hazard
Roller skate	Misc. Non-hazard	Can Fall off Object	Consequence
Step stool	Can Fall off Object	Incomplete Thought	Tripping Hazard
Footstool	Can Fall off Object	Tripping Hazard	Incomplete Thought
Candles	Fire Hazard	Burn (Heat)	Burn (Contains hot liquid)
Matches	Fire Hazard	Burn (Heat)	Incomplete Thought

Table 15 - Summary of Products with Age-Related Differences in Hazard Selection

Product	χ^2 Analysis Results				Explanation (in brief) of differences between Younger Adults (YA) & Older Adults (OA)
	df	χ^2 Value	N	p	
Ammonia	5	20.297	275	.001	YA classified as Fire hazard; OA increased number of Inhaled poison
Axe	5	13.638	225	.018	YA high response “Can fall on someone”; OA increased Incomplete thought
Bedspread	3	10.332	121	.016	YA increased Fire hazard; OA increased tripping hazard
Bleach	6	13.577	290	.035	YA low and OA higher on Burn (chemical); YA low and OA higher on Incomplete thoughts
Bug spray	8	39.935	346	.001	YA and OA opposite on every hazard except Skin irritation and Eye damage
Carpet	2	29.533	129	.001	YA higher on Fire Hazard and Non-hazards; OA higher on Tripping hazard
Chairs w/ wheels	3	10.415	234	.015	YA higher and OA lower on Blunt trauma; OA higher and YA lower on Non-hazards
Coffee maker	4	11.270	239	.024	YA low and OA high on Fire hazard; OA higher and YA lower on Burn (Heat)
Dishwashing detergent	5	12.986	225	.024	YA and OA opposite on every hazard except for Slipping hazard
Electric fan	6	49.264	253	.001	YA higher and OA lower on Severed Limb(s) and Incomplete thoughts; OA higher and YA lower on Non-Hazards and Flying Debris \
Electrical outlet	3	8.194	227	.042	YA high and OA high on electrocution
Extension cord *	5	14.188	275	.014	YA high & OA low on Strangulation & Electric Shock; YA higher and OA lower on Non hazards and Incomplete thoughts; OA higher on Tripping
Fireplace	4	21.563	279	.001	YA high and OA low on Burn(heat) & Non hazards; OA higher on Fire hazard
Footstool *	3	16.661	192	.001	YA high and OA low on Falling hazard; OA high and YA low on Non-hazards
Gas stove	4	11.050	291	.026	YA and OA opposite on every hazard except Incomplete thoughts
Gasoline	5	43.390	309	.001	OA high and YA low on Explosion hazard & Inhaled poison; YA high, and OA low on Eye irritation and Incomplete thoughts
Glass cleaner	4	25.507	217	.001	YA high and OA low on Poison (ingested); OA high and YA low on Incomplete thoughts
Grinder	4	10.006	179	.040	YA higher on OA lower on Severed limb(s); OA higher and YA lower on Incomplete thoughts
Gun	4	149.337	287	.001	Almost all YA responses were Consequences or Warnings; OAs were Incomplete thoughts and Non-hazards
Hair shampoo	4	10.811	205	.029	YA lower and OA higher on Incomplete thoughts and non hazards; YA high and OA low on poison (ingested)
Halogen lamp	5	15.477	206	.009	YA high and OA low on Incomplete thoughts; OA higher and YA lower on Fire hazard and Explosion hazard

Table 15 Continued

Product	χ^2 Analysis Results				Explanation (in brief) of differences between Younger Adults (YA) & Older Adults (OA)
	df	χ^2 Value	N	<i>p</i>	
Horizontal blinds	3	20.092	138	.001	YA high and OA low on Oxygen deprivation (solid) and Warnings; OA higher and YA lower on Cutting hazard
Knife	3	10.748	197	.013	YA high and OA low on Consequences & Warnings; OA high and YA low on Cutting hazard.
Ladders	4	103.778	295	.001	YA and OA opposite on every hazard.
Nail gun	2	15.001	151	.001	YA higher on Non hazards, OA on Incomplete thoughts
Roller skate *	3	15.175	205	.002	YA higher on Non hazard, OA on Consequences
Shower *	3	26.158	220	.001	OA high and YA low on Burns & Slipping; YA high and OA low on Oxygen deprivation (liquid) & Warnings
Skateboard *	4	117.484	247	.001	

* Represents a product which was initially expected (a total of 8) to demonstrate age-related differences

APPENDIX D

CHI-SQUARE ANALYSES FOR AGE RELATED DIFFERENCES

Allergy/sinus Medication			age		Total
			0	100	
Incomplete Thought	Count	16	11	27	
	Expected Count	17.6	9.4	27.0	
Induces Drowsiness	Count	27	6	33	
	Expected Count	21.5	11.5	33.0	
Misc. Non Hazard	Count	41	29	70	
	Expected Count	45.6	24.4	70.0	
Overdose	Count	39	20	59	
	Expected Count	38.4	20.6	59.0	
Total	Count	123	66	189	
	Expected Count	123.0	66.0	189.0	

All-purpose cleaner			age		Total
			0	100	
Skin Irritation	Count	20	15	35	
	Expected Count	23.6	11.4	35.0	
Eye Damage	Count	19	7	26	
	Expected Count	17.5	8.5	26.0	
Eye Irritation	Count	23	9	32	
	Expected Count	21.6	10.4	32.0	
Fire Hazard	Count	22	5	27	
	Expected Count	18.2	8.8	27.0	
Incomplete Thought	Count	16	13	29	
	Expected Count	19.5	9.5	29.0	
Poison (Ingested)	Count	58	23	81	
	Expected Count	54.6	26.4	81.0	
Poison (Inhaled)	Count	30	19	49	
	Expected Count	33.0	16.0	49.0	
Total	Count	188	91	279	
	Expected Count	188.0	91.0	279.0	

Aluminum cans			age		Total
			0	100	
Explosion Hazard	Count	26	6	32	
	Expected Count	21.3	10.7	32.0	
Cutting Hazard	Count	61	39	100	
	Expected Count	66.5	33.5	100.0	
Incomplete Thought	Count	14	8	22	
	Expected Count	14.6	7.4	22.0	
Misc. Non Hazard	Count	18	7	25	
	Expected Count	16.6	8.4	25.0	
Total	Count	119	60	179	
	Expected Count	119.0	60.0	179.0	

Ammonia			age		Total
			0	100	
Skin Irritation	Count	22	7	29	
	Expected Count	20.2	8.8	29.0	
Eye Irritation	Count	27	13	40	
	Expected Count	27.9	12.1	40.0	
Fire Hazard	Count	23	2	25	
	Expected Count	17.5	7.5	25.0	
Incomplete Thought	Count	16	12	28	
	Expected Count	19.5	8.5	28.0	
Poison (Ingested)	Count	66	17	83	
	Expected Count	57.9	25.1	83.0	
Poison (Inhaled)	Count	38	32	70	
	Expected Count	48.9	21.1	70.0	
Total	Count	192	83	275	
	Expected Count	192.0	83.0	275.0	

Antiseptic cleanser			age		Total
			0	100	
Skin Irritation	Count	21	14	35	
	Expected Count	25.5	9.5	35.0	
Eye Damage	Count	19	3	22	
	Expected Count	16.0	6.0	22.0	
Eye Irritation	Count	22	7	29	
	Expected Count	21.1	7.9	29.0	
Fire Hazard	Count	19	2	21	
	Expected Count	15.3	5.7	21.0	
Incomplete Thought	Count	13	9	22	
	Expected Count	16.0	6.0	22.0	
Poison (Ingested)	Count	53	17	70	
	Expected Count	51.0	19.0	70.0	
Poison (Inhaled)	Count	14	8	22	
	Expected Count	16.0	6.0	22.0	
Total	Count	161	60	221	
	Expected Count	161.0	60.0	221.0	

Axe			age		Total
			0	100	
Cutting Hazard	Count	41	28	69	
	Expected Count	42.6	26.4	69.0	
Can Fall on Someone	Count	19	2	21	
	Expected Count	13.0	8.0	21.0	
Flying Debris	Count	13	8	21	
	Expected Count	13.0	8.0	21.0	
Incomplete Thought	Count	18	23	41	
	Expected Count	25.3	15.7	41.0	
Misc. Non Hazard	Count	27	13	40	
	Expected Count	24.7	15.3	40.0	
Severed Limb(s)	Count	21	12	33	
	Expected Count	20.4	12.6	33.0	
Total	Count	139	86	225	
	Expected Count	139.0	86.0	225.0	

Bedspread			age		Total
			0	100	
Fire Hazard	Count	21	6	27	
	Expected Count	16.5	10.5	27.0	
Misc. Non Hazard	Count	15	7	22	
	Expected Count	13.5	8.5	22.0	
Suffocation Hazard	Count	30	19	49	
	Expected Count	30.0	19.0	49.0	
Tripping Hazard	Count	8	15	23	
	Expected Count	14.1	8.9	23.0	
Total	Count	74	47	121	
	Expected Count	74.0	47.0	121.0	

Bleach			age		Total
			0	100	
Burn (Chemical)	Count	12	13	25	
	Expected Count	16.6	8.4	25.0	
Skin Irritation	Count	23	9	32	
	Expected Count	21.3	10.7	32.0	
Eye Damage	Count	21	13	34	
	Expected Count	22.6	11.4	34.0	
Eye Irritation	Count	29	7	36	
	Expected Count	24.0	12.0	36.0	
Incomplete Thought	Count	12	13	25	
	Expected Count	16.6	8.4	25.0	
Poison (Ingested)	Count	65	24	89	
	Expected Count	59.2	29.8	89.0	
Poison (Inhaled)	Count	31	18	49	
	Expected Count	32.6	16.4	49.0	
Total	Count	193	97	290	
	Expected Count	193.0	97.0	290.0	

Blender			age		Total
			0	100	
Cutting Hazard	Count	50	23	73	
	Expected Count	47.6	25.4	73.0	
Electric Shock	Count	34	16	50	
	Expected Count	32.6	17.4	50.0	
Fire Hazard	Count	17	7	24	
	Expected Count	15.7	8.3	24.0	
Flying Debris	Count	16	8	24	
	Expected Count	15.7	8.3	24.0	
Incomplete Thought	Count	18	18	36	
	Expected Count	23.5	12.5	36.0	
Total	Count	135	72	207	
	Expected Count	135.0	72.0	207.0	

Bug spray			age		Total
			0	100	
Explosion Hazard	Count	26	7	33	
	Expected Count	21.0	12.0	33.0	
Skin Irritation	Count	20	10	30	
	Expected Count	19.1	10.9	30.0	
Eye Damage	Count	13	9	22	
	Expected Count	14.0	8.0	22.0	
Eye Irritation	Count	27	10	37	
	Expected Count	23.5	13.5	37.0	
Fire Hazard	Count	26	4	30	
	Expected Count	19.1	10.9	30.0	
Incomplete Thought	Count	12	29	41	
	Expected Count	26.1	14.9	41.0	
Misc. Non Hazard	Count	17	5	22	
	Expected Count	14.0	8.0	22.0	
Poison (Ingested)	Count	50	23	73	
	Expected Count	46.4	26.6	73.0	
Poison (Inhaled)	Count	29	29	58	
	Expected Count	36.9	21.1	58.0	
Total	Count	220	126	346	
	Expected Count	220.0	126.0	346.0	

Candles			age		Total
			0	100	
Burn (Contains hot liquid)	Count	36	21	57	
	Expected Count	34.5	22.5	57.0	
Burn (Heat)	Count	55	26	81	
	Expected Count	49.0	32.0	81.0	
Fire Hazard	Count	47	43	90	
	Expected Count	54.5	35.5	90.0	
Total	Count	138	90	228	
	Expected Count	138.0	90.0	228.0	

Carpet			age		Total
			0	100	
Fire Hazard	Count	30	4	34	
	Expected Count	22.4	11.6	34.0	
Misc. Non Hazard	Count	44	15	59	
	Expected Count	38.9	20.1	59.0	
Tripping Hazard	Count	11	25	36	
	Expected Count	23.7	12.3	36.0	
Total	Count	85	44	129	
	Expected Count	85.0	44.0	129.0	

Chain saw			age		Total
			0	100	
Cutting Hazard	Count	44	26	70	
	Expected Count	42.6	27.4	70.0	
Flying Debris	Count	18	8	26	
	Expected Count	15.8	10.2	26.0	
Incomplete Thought	Count	21	22	43	
	Expected Count	26.2	16.8	43.0	
Misc. Non Hazard	Count	22	16	38	
	Expected Count	23.1	14.9	38.0	
Severed Limb(s)	Count	24	11	35	
	Expected Count	21.3	13.7	35.0	
Total	Count	129	83	212	
	Expected Count	129.0	83.0	212.0	

Chairs w/ wheels			age		Total
			0	100	
Blunt Trauma	Count	23	2	25	
	Expected Count	15.7	9.3	25.0	
Falling Hazard	Count	33	22	55	
	Expected Count	34.6	20.4	55.0	
Incomplete Thought	Count	23	14	37	
	Expected Count	23.2	13.8	37.0	
Misc. Non Hazard	Count	68	49	117	
	Expected Count	73.5	43.5	117.0	
Total	Count	147	87	234	
	Expected Count	147.0	87.0	234.0	

Chipper Shredder			age		Total
			0	100	
Cutting Hazard	Count	27	10	37	
	Expected Count	22.8	14.2	37.0	
Flying Debris	Count	27	21	48	
	Expected Count	29.6	18.4	48.0	
Incomplete Thought	Count	31	21	52	
	Expected Count	32.1	19.9	52.0	
Severed Limb(s)	Count	18	12	30	
	Expected Count	18.5	11.5	30.0	
Total	Count	103	64	167	
	Expected Count	103.0	64.0	167.0	

Circular saw			age		Total
			0	100	
Cutting Hazard	Count	41	23	64	
	Expected Count	39.0	25.0	64.0	
Electric Shock	Count	14	14	28	
	Expected Count	17.1	10.9	28.0	
Flying Debris	Count	18	8	26	
	Expected Count	15.9	10.1	26.0	
Incomplete Thought	Count	20	19	39	
	Expected Count	23.8	15.2	39.0	
Severed Limb(s)	Count	29	14	43	
	Expected Count	26.2	16.8	43.0	
Total	Count	122	78	200	
	Expected Count	122.0	78.0	200.0	

Coffee maker			age		Total
			0	100	
Burn (Contains hot liquid)	Count		40	21	61
	Expected Count		39.1	21.9	61.0
Burn (Heat)	Count		41	15	56
	Expected Count		35.8	20.2	56.0
Cutting Hazard	Count		25	10	35
	Expected Count		22.4	12.6	35.0
Electric Shock	Count		28	15	43
	Expected Count		27.5	15.5	43.0
Fire Hazard	Count		19	25	44
	Expected Count		28.2	15.8	44.0
Total	Count		153	86	239
	Expected Count		153.0	86.0	239.0

Curling Iron			age		Total
			0	100	
Burn (Heat)	Count		63	44	107
	Expected Count		64.7	42.3	107.0
Electric Shock	Count		32	19	51
	Expected Count		30.9	20.1	51.0
Fire Hazard	Count		35	16	51
	Expected Count		30.9	20.1	51.0
Incomplete Thought	Count		17	10	27
	Expected Count		16.3	10.7	27.0
Misc. Non Hazard	Count		20	20	40
	Expected Count		24.2	15.8	40.0
Total	Count		167	109	276
	Expected Count		167.0	109.0	276.0

Dishwashing detergent			age		Total
			0	100	
Skin Irritation	Count	18	19	37	
	Expected Count	22.2	14.8	37.0	
Eye Irritation	Count	23	8	31	
	Expected Count	18.6	12.4	31.0	
Incomplete Thought	Count	14	19	33	
	Expected Count	19.8	13.2	33.0	
Misc. Non Hazard	Count	18	15	33	
	Expected Count	19.8	13.2	33.0	
Poison (Ingested)	Count	44	17	61	
	Expected Count	36.6	24.4	61.0	
Slipping Hazard	Count	18	12	30	
	Expected Count	18.0	12.0	30.0	
Total	Count	135	90	225	
	Expected Count	135.0	90.0	225.0	

Drain Cleaner			age		Total
			0	100	
Skin Irritation	Count	18	11	29	
	Expected Count	18.3	10.7	29.0	
Eye Damage	Count	13	10	23	
	Expected Count	14.5	8.5	23.0	
Eye Irritation	Count	27	7	34	
	Expected Count	21.5	12.5	34.0	
Incomplete Thought	Count	13	16	29	
	Expected Count	18.3	10.7	29.0	
Poison (Ingested)	Count	62	30	92	
	Expected Count	58.0	34.0	92.0	
Poison (Inhaled)	Count	26	19	45	
	Expected Count	28.4	16.6	45.0	
Total	Count	159	93	252	
	Expected Count	159.0	93.0	252.0	

Electric blanket			age		Total
			0	100	
Burn (Heat)	Count	37	23	60	
	Expected Count	36.6	23.4	60.0	
Electric Shock	Count	38	23	61	
	Expected Count	37.2	23.8	61.0	
Fire Hazard	Count	43	30	73	
	Expected Count	44.5	28.5	73.0	
Incomplete Thought	Count	24	15	39	
	Expected Count	23.8	15.2	39.0	
Total	Count	142	91	233	
	Expected Count	142.0	91.0	233.0	

Electric can opener			age		Total
			0	100	
Cutting Hazard	Count	73	44	117	
	Expected Count	71.5	45.5	117.0	
Electric Shock	Count	37	26	63	
	Expected Count	38.5	24.5	63.0	
Total	Count	110	70	180	
	Expected Count	110.0	70.0	180.0	

Electric fan			age		Total
			0	100	
Cutting Hazard	Count	23	20	43	
	Expected Count	23.6	19.4	43.0	
Electric Shock	Count	43	21	64	
	Expected Count	35.2	28.8	64.0	
Fire Hazard	Count	15	18	33	
	Expected Count	18.1	14.9	33.0	
Flying Debris	Count	15	6	21	
	Expected Count	11.5	9.5	21.0	
Incomplete Thought	Count	4	22	26	
	Expected Count	14.3	11.7	26.0	
Misc. Non Hazard	Count	10	24	34	
	Expected Count	18.7	15.3	34.0	
Severed Limb(s)	Count	29	3	32	
	Expected Count	17.6	14.4	32.0	
Total	Count	139	114	253	
	Expected Count	139.0	114.0	253.0	

Electric grill			age		Total
			0	100	
Burn (Heat)	Count	54	31	85	
	Expected Count	53.0	32.0	85.0	
Electric Shock	Count	31	18	49	
	Expected Count	30.6	18.4	49.0	
Fire Hazard	Count	41	27	68	
	Expected Count	42.4	25.6	68.0	
Total	Count	126	76	202	
	Expected Count	126.0	76.0	202.0	

Electric heater			age		Total
			0	100	
Burn (Heat)	Count	51	25	76	
	Expected Count	46.5	29.5	76.0	
Electric Shock	Count	34	18	52	
	Expected Count	31.8	20.2	52.0	
Fire Hazard	Count	55	46	101	
	Expected Count	61.7	39.3	101.0	
Total	Count	140	89	229	
	Expected Count	140.0	89.0	229.0	

Electric iron			age		Total
			0	100	
Burn (Heat)	Count	61	40	101	
	Expected Count	61.1	39.9	101.0	
Electric Shock	Count	32	23	55	
	Expected Count	33.3	21.7	55.0	
Can Fall on Someone	Count	26	13	39	
	Expected Count	23.6	15.4	39.0	
Fire Hazard	Count	38	26	64	
	Expected Count	38.7	25.3	64.0	
Hazardous to Property	Count	13	9	22	
	Expected Count	13.3	8.7	22.0	
Total	Count	170	111	281	
	Expected Count	170.0	111.0	281.0	

Electric knife			age		Total
			0	100	
Cutting Hazard	Count	63	39	102	
	Expected Count	60.4	41.6	102.0	
Electric Shock	Count	33	25	58	
	Expected Count	34.4	23.6	58.0	
Incomplete Thought	Count	13	11	24	
	Expected Count	14.2	9.8	24.0	
Total	Count	109	75	184	
	Expected Count	109.0	75.0	184.0	

Electric stove			age		Total
			0	100	
Burn (Heat)	Count	59	28	87	
	Expected Count	54.3	32.7	87.0	
Electric Shock	Count	24	15	39	
	Expected Count	24.3	14.7	39.0	
Fire Hazard	Count	40	31	71	
	Expected Count	44.3	26.7	71.0	
Incomplete Thought	Count	13	8	21	
	Expected Count	13.1	7.9	21.0	
Total	Count	136	82	218	
	Expected Count	136.0	82.0	218.0	

Electrical outlet			age		Total
			0	100	
Electric Shock	Count	51	35	86	
	Expected Count	50.8	35.2	86.0	
Electrocution	Count	24	6	30	
	Expected Count	17.7	12.3	30.0	
Fire Hazard	Count	44	34	78	
	Expected Count	46.0	32.0	78.0	
Incomplete Thought	Count	15	18	33	
	Expected Count	19.5	13.5	33.0	
Total	Count	134	93	227	
	Expected Count	134.0	93.0	227.0	

Electrical wires			age		Total
			0	100	
Electric Shock	Count	46	29	75	
	Expected Count	45.6	29.4	75.0	
Electrocution	Count	20	12	32	
	Expected Count	19.5	12.5	32.0	
Fire Hazard	Count	37	27	64	
	Expected Count	38.9	25.1	64.0	
Misc. Non Hazard	Count	10	13	23	
	Expected Count	14.0	9.0	23.0	
Strangulation Hazard	Count	18	3	21	
	Expected Count	12.8	8.2	21.0	
Tripping Hazard	Count	21	14	35	
	Expected Count	21.3	13.7	35.0	
Total	Count	152	98	250	
	Expected Count	152.0	98.0	250.0	

Extension cord			age		Total
			0	100	
Electric Shock	Count	42	23	65	
	Expected Count	37.8	27.2	65.0	
Fire Hazard	Count	31	23	54	
	Expected Count	31.4	22.6	54.0	
Incomplete Thought	Count	8	14	22	
	Expected Count	12.8	9.2	22.0	
Misc. Non Hazard	Count	10	13	23	
	Expected Count	13.4	9.6	23.0	
Strangulation Hazard	Count	29	8	37	
	Expected Count	21.5	15.5	37.0	
Tripping Hazard	Count	40	34	74	
	Expected Count	43.1	30.9	74.0	
Total	Count	160	115	275	
	Expected Count	160.0	115.0	275.0	

Fireplace			age		Total
			0	100	
Burn (Heat)	Count	50	20	70	
	Expected Count	40.9	29.1	70.0	
Fire Hazard	Count	35	50	85	
	Expected Count	49.7	35.3	85.0	
Incomplete Thought	Count	30	23	53	
	Expected Count	31.0	22.0	53.0	
Misc. Non Hazard	Count	27	7	34	
	Expected Count	19.9	14.1	34.0	
Poison (Inhaled)	Count	21	16	37	
	Expected Count	21.6	15.4	37.0	
Total	Count	163	116	279	
	Expected Count	163.0	116.0	279.0	

Food processor			age		Total
			0	100	
Cutting Hazard	Count	39	27	66	
	Expected Count	37.6	28.4	66.0	
Electric Shock	Count	22	14	36	
	Expected Count	20.5	15.5	36.0	
Incomplete Thought	Count	11	17	28	
	Expected Count	15.9	12.1	28.0	
Misc. Non Hazard	Count	14	7	21	
	Expected Count	12.0	9.0	21.0	
Total	Count	86	65	151	
	Expected Count	86.0	65.0	151.0	

Footstool			age		Total
			0	100	
Falling Hazard	Count	59	27	86	
	Expected Count	48.4	37.6	86.0	
Incomplete Thought	Count	16	13	29	
	Expected Count	16.3	12.7	29.0	
Misc. Non Hazard	Count	7	21	28	
	Expected Count	15.8	12.3	28.0	
Tripping Hazard	Count	26	23	49	
	Expected Count	27.6	21.4	49.0	
Total	Count	108	84	192	
	Expected Count	108.0	84.0	192.0	

Furniture polish			age		Total
			0	100	
Skin Irritation	Count	21	10	31	
	Expected Count	22.0	9.0	31.0	
Eye Irritation	Count	21	9	30	
	Expected Count	21.3	8.7	30.0	
Fire Hazard	Count	28	4	32	
	Expected Count	22.7	9.3	32.0	
Poison (Ingested)	Count	56	24	80	
	Expected Count	56.7	23.3	80.0	
Poison (Inhaled)	Count	32	18	50	
	Expected Count	35.4	14.6	50.0	
Total	Count	158	65	223	
	Expected Count	158.0	65.0	223.0	

Gas grill			age		Total
			0	100	
Burn (Heat)	Count	54	30	84	
	Expected Count	53.0	31.0	84.0	
Explosion Hazard	Count	49	32	81	
	Expected Count	51.1	29.9	81.0	
Fire Hazard	Count	45	19	64	
	Expected Count	40.4	23.6	64.0	
Incomplete Thought	Count	13	17	30	
	Expected Count	18.9	11.1	30.0	
Poison (Inhaled)	Count	25	11	36	
	Expected Count	22.7	13.3	36.0	
Total	Count	186	109	295	
	Expected Count	186.0	109.0	295.0	

Gas stove			age		Total
			0	100	
Burn (Heat)	Count	51	20	71	
	Expected Count	45.1	25.9	71.0	
Explosion Hazard	Count	36	26	62	
	Expected Count	39.4	22.6	62.0	
Fire Hazard	Count	57	23	80	
	Expected Count	50.9	29.1	80.0	
Incomplete Thought	Count	23	15	38	
	Expected Count	24.2	13.8	38.0	
Poison (Inhaled)	Count	18	22	40	
	Expected Count	25.4	14.6	40.0	
Total	Count	185	106	291	
	Expected Count	185.0	106.0	291.0	

Gas water heater			age		Total
			0	100	
Burn (Contains hot liquid)	Count	25	13	38	
	Expected Count	23.4	14.6	38.0	
Burn (Heat)	Count	24	8	32	
	Expected Count	19.7	12.3	32.0	
Explosion Hazard	Count	42	35	77	
	Expected Count	47.3	29.7	77.0	
Fire Hazard	Count	30	16	46	
	Expected Count	28.3	17.7	46.0	
Incomplete Thought	Count	24	19	43	
	Expected Count	26.4	16.6	43.0	
Poison (Inhaled)	Count	13	8	21	
	Expected Count	12.9	8.1	21.0	
Total	Count	158	99	257	
	Expected Count	158.0	99.0	257.0	

Gasoline			age		Total
			0	100	
Explosion Hazard	Count		17	36	53
	Expected Count		33.4	19.6	53.0
Eye Irritation	Count		20	2	22
	Expected Count		13.9	8.1	22.0
Fire Hazard	Count		55	30	85
	Expected Count		53.6	31.4	85.0
Incomplete Thought	Count		38	6	44
	Expected Count		27.8	16.2	44.0
Poison (Ingested)	Count		37	15	52
	Expected Count		32.8	19.2	52.0
Poison (Inhaled)	Count		28	25	53
	Expected Count		33.4	19.6	53.0
Total	Count		195	114	309
	Expected Count		195.0	114.0	309.0

Glass bottles			age		Total
			0	100	
Cutting Hazard	Count		51	39	90
	Expected Count		55.9	34.1	90.0
Incomplete Thought	Count		33	11	44
	Expected Count		27.3	16.7	44.0
Misc. Non Hazard	Count		21	14	35
	Expected Count		21.7	13.3	35.0
Total	Count		105	64	169
	Expected Count		105.0	64.0	169.0

Glass cleaner			age		Total
			0	100	
Skin Irritation	Count	15	9	24	
	Expected Count	16.1	7.9	24.0	
Eye Damage	Count	17	6	23	
	Expected Count	15.5	7.5	23.0	
Eye Irritation	Count	25	12	37	
	Expected Count	24.9	12.1	37.0	
Incomplete Thought	Count	11	23	34	
	Expected Count	22.9	11.1	34.0	
Poison (Ingested)	Count	78	21	99	
	Expected Count	66.6	32.4	99.0	
Total	Count	146	71	217	
	Expected Count	146.0	71.0	217.0	

Grinder			age		Total
			0	100	
Cutting Hazard	Count	20	16	36	
	Expected Count	21.5	14.5	36.0	
Flying Debris	Count	20	10	30	
	Expected Count	17.9	12.1	30.0	
Incomplete Thought	Count	31	33	64	
	Expected Count	38.3	25.7	64.0	
Misc. Non Hazard	Count	16	9	25	
	Expected Count	14.9	10.1	25.0	
Severed Limb(s)	Count	20	4	24	
	Expected Count	14.3	9.7	24.0	
Total	Count	107	72	179	
	Expected Count	107.0	72.0	179.0	

Gun			age		Total
			0	100	
Explosion Hazard	Count	16	16	32	
	Expected Count	17.7	14.3	32.0	
Consequence	Count	81	11	92	
	Expected Count	51.0	41.0	92.0	
Incomplete Thought	Count	7	34	41	
	Expected Count	22.7	18.3	41.0	
Misc. Non Hazard	Count	3	58	61	
	Expected Count	33.8	27.2	61.0	
Warning or Instruction	Count	52	9	61	
	Expected Count	33.8	27.2	61.0	
Total	Count	159	128	287	
	Expected Count	159.0	128.0	287.0	

Hair Dryers			age		Total
			0	100	
Burn (Heat)	Count	49	30	79	
	Expected Count	50.0	29.0	79.0	
Electric Shock	Count	39	26	65	
	Expected Count	41.2	23.8	65.0	
Electrocution	Count	17	4	21	
	Expected Count	13.3	7.7	21.0	
Fire Hazard	Count	28	15	43	
	Expected Count	27.2	15.8	43.0	
Misc. Non Hazard	Count	26	17	43	
	Expected Count	27.2	15.8	43.0	
Total	Count	159	92	251	
	Expected Count	159.0	92.0	251.0	

Hair shampoo			age		Total
			0	100	
Eye Irritation	Count	44	24	68	
	Expected Count	43.5	24.5	68.0	
Incomplete Thought	Count	12	15	27	
	Expected Count	17.3	9.7	27.0	
Misc. Non Hazard	Count	11	11	22	
	Expected Count	14.1	7.9	22.0	
Poison (Ingested)	Count	42	12	54	
	Expected Count	34.5	19.5	54.0	
Slipping Hazard	Count	22	12	34	
	Expected Count	21.7	12.3	34.0	
Total	Count	131	74	205	
	Expected Count	131.0	74.0	205.0	

Halogen lamp			age		Total
			0	100	
Burn (Heat)	Count	35	16	51	
	Expected Count	34.4	16.6	51.0	
Explosion Hazard	Count	11	12	23	
	Expected Count	15.5	7.5	23.0	
Cutting Hazard	Count	18	5	23	
	Expected Count	15.5	7.5	23.0	
Electric Shock	Count	19	7	26	
	Expected Count	17.5	8.5	26.0	
Fire Hazard	Count	33	25	58	
	Expected Count	39.1	18.9	58.0	
Incomplete Thought	Count	23	2	25	
	Expected Count	16.9	8.1	25.0	
Total	Count	139	67	206	
	Expected Count	139.0	67.0	206.0	

Hand saw			age		Total
			0	100	
Cutting Hazard	Count	62	36	98	
	Expected Count	58.5	39.5	98.0	
Incomplete Thought	Count	16	11	27	
	Expected Count	16.1	10.9	27.0	
Misc. Non Hazard	Count	11	13	24	
	Expected Count	14.3	9.7	24.0	
Total	Count	89	60	149	
	Expected Count	89.0	60.0	149.0	

Heating pads			age		Total
			0	100	
Burn (Heat)	Count	51	40	91	
	Expected Count	49.4	41.6	91.0	
Electric Shock	Count	18	20	38	
	Expected Count	20.6	17.4	38.0	
Fire Hazard	Count	27	21	48	
	Expected Count	26.0	22.0	48.0	
Total	Count	96	81	177	
	Expected Count	96.0	81.0	177.0	

Hedge trimmer			age		Total
			0	100	
Cutting Hazard	Count	49	32	81	
	Expected Count	45.0	36.0	81.0	
Electric Shock	Count	14	18	32	
	Expected Count	17.8	14.2	32.0	
Flying Debris	Count	11	14	25	
	Expected Count	13.9	11.1	25.0	
Incomplete Thought	Count	15	12	27	
	Expected Count	15.0	12.0	27.0	
Misc. Non Hazard	Count	20	11	31	
	Expected Count	17.2	13.8	31.0	
Total	Count	109	87	196	
	Expected Count	109.0	87.0	196.0	

Horizontal blinds			age		Total
			0	100	
Cutting Hazard	Count	16	14	30	
	Expected Count	22.8	7.2	30.0	
Can Fall on Someone	Count	25	13	38	
	Expected Count	28.9	9.1	38.0	
Oxygen Deprivation (Solid)	Count	43	5	48	
	Expected Count	36.5	11.5	48.0	
Warning or Instruction	Count	21	1	22	
	Expected Count	16.7	5.3	22.0	
Total	Count	105	33	138	
	Expected Count	105.0	33.0	138.0	

Kitchen oven			age		Total
			0	100	
Burn (Heat)	Count	61	27	88	
	Expected Count	58.8	29.2	88.0	
Fire Hazard	Count	48	26	74	
	Expected Count	49.4	24.6	74.0	
Incomplete Thought	Count	21	11	32	
	Expected Count	21.4	10.6	32.0	
Misc. Non Hazard	Count	17	9	26	
	Expected Count	17.4	8.6	26.0	
Total	Count	147	73	220	
	Expected Count	147.0	73.0	220.0	

Knife			age		Total
			0	100	
Consequence	Count	20	3	23	
	Expected Count	14.9	8.1	23.0	
Cutting Hazard	Count	64	47	111	
	Expected Count	72.1	38.9	111.0	
Stab/Puncture Hazard	Count	20	13	33	
	Expected Count	21.4	11.6	33.0	
Warning or Instruction	Count	24	6	30	
	Expected Count	19.5	10.5	30.0	
Total	Count	128	69	197	
	Expected Count	128.0	69.0	197.0	

Ladders			age		Total
			0	100	
Falling Hazard	Count	76	40	116	
	Expected Count	66.5	49.5	116.0	
Can Fall on Someone	Count	41	12	53	
	Expected Count	30.4	22.6	53.0	
Incomplete Thought	Count	2	48	50	
	Expected Count	28.6	21.4	50.0	
Misc. Non Hazard	Count	4	19	23	
	Expected Count	13.2	9.8	23.0	
Warning or Instruction	Count	46	7	53	
	Expected Count	30.4	22.6	53.0	
Total	Count	169	126	295	
	Expected Count	169.0	126.0	295.0	

Lawn edger			age		Total
			0	100	
Cutting Hazard	Count	44	34	78	
	Expected Count	45.0	33.0	78.0	
Flying Debris	Count	20	18	38	
	Expected Count	21.9	16.1	38.0	
Incomplete Thought	Count	26	14	40	
	Expected Count	23.1	16.9	40.0	
Total	Count	90	66	156	
	Expected Count	90.0	66.0	156.0	

Lawnmower			age		Total
			0	100	
Explosion Hazard	Count	16	5	21	
	Expected Count	13.7	7.3	21.0	
Cutting Hazard	Count	35	16	51	
	Expected Count	33.2	17.8	51.0	
Fire Hazard	Count	16	11	27	
	Expected Count	17.6	9.4	27.0	
Flying Debris	Count	31	17	48	
	Expected Count	31.2	16.8	48.0	
Incomplete Thought	Count	38	22	60	
	Expected Count	39.0	21.0	60.0	
Misc. Non Hazard	Count	22	11	33	
	Expected Count	21.5	11.5	33.0	
Severed Limb(s)	Count	13	10	23	
	Expected Count	15.0	8.0	23.0	
Total	Count	171	92	263	
	Expected Count	171.0	92.0	263.0	

Light Bulb			age		Total
			0	100	
Burn (Heat)	Count	38	20	58	
	Expected Count	35.9	22.1	58.0	
Explosion Hazard	Count	11	17	28	
	Expected Count	17.3	10.7	28.0	
Cutting Hazard	Count	51	27	78	
	Expected Count	48.3	29.7	78.0	
Electric Shock	Count	35	19	54	
	Expected Count	33.4	20.6	54.0	
Total	Count	135	83	218	
	Expected Count	135.0	83.0	218.0	

Matches			age		Total
			0	100	
Burn (Heat)	Count	40	32	72	
	Expected Count	40.0	32.0	72.0	
Fire Hazard	Count	64	51	115	
	Expected Count	63.9	51.1	115.0	
Incomplete Thought	Count	21	17	38	
	Expected Count	21.1	16.9	38.0	
Total	Count	125	100	225	
	Expected Count	125.0	100.0	225.0	

Metal polish			age		Total
			0	100	
Skin Irritation	Count	25	12	37	
	Expected Count	26.1	10.9	37.0	
Eye Irritation	Count	22	8	30	
	Expected Count	21.2	8.8	30.0	
Fire Hazard	Count	24	3	27	
	Expected Count	19.0	8.0	27.0	
Incomplete Thought	Count	15	13	28	
	Expected Count	19.8	8.3	28.0	
Poison (Ingested)	Count	51	19	70	
	Expected Count	49.4	20.6	70.0	
Poison (Inhaled)	Count	21	11	32	
	Expected Count	22.6	9.4	32.0	
Total	Count	158	66	224	
	Expected Count	158.0	66.0	224.0	

Nail gun			age		Total
			0	100	
Incomplete Thought	Count	29	28	57	
	Expected Count	38.5	18.5	57.0	
Misc. Non Hazard	Count	43	7	50	
	Expected Count	33.8	16.2	50.0	
Stab/Puncture Hazard	Count	30	14	44	
	Expected Count	29.7	14.3	44.0	
Total	Count	102	49	151	
	Expected Count	102.0	49.0	151.0	

Nails			age		Total
			0	100	
Cutting Hazard	Count	13	10	23	
	Expected Count	14.4	8.6	23.0	
Incomplete Thought	Count	34	23	57	
	Expected Count	35.7	21.3	57.0	
Infection	Count	22	10	32	
	Expected Count	20.1	11.9	32.0	
Misc. Non Hazard	Count	25	26	51	
	Expected Count	32.0	19.0	51.0	
Stab/Puncture Hazard	Count	52	18	70	
	Expected Count	43.9	26.1	70.0	
Total	Count	146	87	233	
	Expected Count	146.0	87.0	233.0	

Pain reliever			age		Total
			0	100	
Allergic Reaction	Count	13	8	21	
	Expected Count	11.7	9.3	21.0	
Incomplete Thought	Count	17	13	30	
	Expected Count	16.8	13.2	30.0	
Misc. Non Hazard	Count	50	45	95	
	Expected Count	53.1	41.9	95.0	
Overdose	Count	49	36	85	
	Expected Count	47.5	37.5	85.0	
Total	Count	129	102	231	
	Expected Count	129.0	102.0	231.0	

Paper shredder			age		Total
			0	100	
Cutting Hazard	Count	46	23	69	
	Expected Count	42.5	26.5	69.0	
Electric Shock	Count	16	13	29	
	Expected Count	17.9	11.1	29.0	
Fire Hazard	Count	14	10	24	
	Expected Count	14.8	9.2	24.0	
Incomplete Thought	Count	17	12	29	
	Expected Count	17.9	11.1	29.0	
Total	Count	93	58	151	
	Expected Count	93.0	58.0	151.0	

Plastic bag			age		Total
			0	100	
Incomplete Thought	Count	14	12	26	
	Expected Count	16.0	10.0	26.0	
Misc. Non Hazard	Count	17	11	28	
	Expected Count	17.2	10.8	28.0	
Oxygen Deprivation (Solid)	Count	20	12	32	
	Expected Count	19.7	12.3	32.0	
Suffocation Hazard	Count	50	28	78	
	Expected Count	48.0	30.0	78.0	
Total	Count	101	63	164	
	Expected Count	101.0	63.0	164.0	

Power saw			age		Total
			0	100	
Cutting Hazard	Count	42	19	61	
	Expected Count	39.1	21.9	61.0	
Electric Shock	Count	17	12	29	
	Expected Count	18.6	10.4	29.0	
Flying Debris	Count	16	7	23	
	Expected Count	14.8	8.2	23.0	
Incomplete Thought	Count	26	19	45	
	Expected Count	28.9	16.1	45.0	
Severed Limb(s)	Count	26	14	40	
	Expected Count	25.7	14.3	40.0	
Total	Count	127	71	198	
	Expected Count	127.0	71.0	198.0	

Roller skate			age		Total
			0	100	
Consequence	Count	14	24	38	
	Expected Count	23.5	14.5	38.0	
Falling Hazard	Count	37	25	62	
	Expected Count	38.4	23.6	62.0	
Misc. Non Hazard	Count	59	23	82	
	Expected Count	50.8	31.2	82.0	
Tripping Hazard	Count	17	6	23	
	Expected Count	14.2	8.8	23.0	
Total	Count	127	78	205	
	Expected Count	127.0	78.0	205.0	

Scissors			age		Total
			0	100	
Cutting Hazard	Count	59	44	103	
	Expected Count	65.2	37.8	103.0	
Eye Damage	Count	21	6	27	
	Expected Count	17.1	9.9	27.0	
Incomplete Thought	Count	18	5	23	
	Expected Count	14.6	8.4	23.0	
Misc. Non Hazard	Count	13	8	21	
	Expected Count	13.3	7.7	21.0	
Stab/Puncture Hazard	Count	29	18	47	
	Expected Count	29.8	17.2	47.0	
Total	Count	140	81	221	
	Expected Count	140.0	81.0	221.0	

Shower			age		Total
			0	100	
Burn (Contains hot liquid)	Count	43	31	74	
	Expected Count	51.8	22.2	74.0	
Oxygen Deprivation (Liquid)	Count	25	1	26	
	Expected Count	18.2	7.8	26.0	
Slipping Hazard	Count	56	33	89	
	Expected Count	62.3	26.7	89.0	
Warning or Instruction	Count	30	1	31	
	Expected Count	21.7	9.3	31.0	
Total	Count	154	66	220	
	Expected Count	154.0	66.0	220.0	

Skateboard			age		Total
			0	100	
Consequence	Count	17	19	36	
	Expected Count	20.4	15.6	36.0	
Falling Hazard	Count	48	23	71	
	Expected Count	40.2	30.8	71.0	
Incomplete Thought	Count	4	24	28	
	Expected Count	15.9	12.1	28.0	
Misc. Non Hazard	Count	1	38	39	
	Expected Count	22.1	16.9	39.0	
Warning or Instruction	Count	70	3	73	
	Expected Count	41.4	31.6	73.0	
Total	Count	140	107	247	
	Expected Count	140.0	107.0	247.0	

Soap			age		Total
			0	100	
Eye Irritation	Count	36	20	56	
	Expected Count	36.9	19.1	56.0	
Misc. Non Hazard	Count	13	8	21	
	Expected Count	13.9	7.1	21.0	
Poison (Ingested)	Count	38	12	50	
	Expected Count	33.0	17.0	50.0	
Slipping Hazard	Count	39	25	64	
	Expected Count	42.2	21.8	64.0	
Total	Count	126	65	191	
	Expected Count	126.0	65.0	191.0	

Space heater			age		Total
			0	100	
Burn (Heat)	Count	49	19	68	
	Expected Count	45.9	22.1	68.0	
Electric Shock	Count	18	4	22	
	Expected Count	14.8	7.2	22.0	
Fire Hazard	Count	54	37	91	
	Expected Count	61.4	29.6	91.0	
Misc. Non Hazard	Count	18	7	25	
	Expected Count	16.9	8.1	25.0	
Total	Count	139	67	206	
	Expected Count	139.0	67.0	206.0	

Step stool			age		Total
			0	100	
Falling Hazard	Count	66	37	103	
	Expected Count	62.5	40.5	103.0	
Incomplete Thought	Count	20	20	40	
	Expected Count	24.3	15.7	40.0	
Misc. Non Hazard	Count	14	11	25	
	Expected Count	15.2	9.8	25.0	
Tripping Hazard	Count	22	11	33	
	Expected Count	20.0	13.0	33.0	
Total	Count	122	79	201	
	Expected Count	122.0	79.0	201.0	

Stove cooking 'eye'			age		Total
			0	100	
Burn (Heat)	Count	43	31	74	
	Expected Count	44.4	29.6	74.0	
Fire Hazard	Count	32	19	51	
	Expected Count	30.6	20.4	51.0	
Total	Count	75	50	125	
	Expected Count	75.0	50.0	125.0	

Swimming pool			age		Total
			0	100	
Drowning Hazard	Count	56	33	89	
	Expected Count	55.4	33.6	89.0	
Incomplete Thought	Count	28	22	50	
	Expected Count	31.1	18.9	50.0	
Misc. Non Hazard	Count	37	25	62	
	Expected Count	38.6	23.4	62.0	
Slipping Hazard	Count	21	6	27	
	Expected Count	16.8	10.2	27.0	
Total	Count	142	86	228	
	Expected Count	142.0	86.0	228.0	

Thermometer			age		Total
			0	100	
Cutting Hazard	Count	39	23	62	
	Expected Count	38.2	23.8	62.0	
Incomplete Thought	Count	40	24	64	
	Expected Count	39.4	24.6	64.0	
Misc. Non Hazard	Count	12	11	23	
	Expected Count	14.2	8.8	23.0	
Poison (Ingested)	Count	34	20	54	
	Expected Count	33.3	20.7	54.0	
Total	Count	125	78	203	
	Expected Count	125.0	78.0	203.0	

Tile floors			age		Total
			0	100	
Cutting Hazard	Count	19	5	24	
	Expected Count	15.3	8.7	24.0	
Incomplete Thought	Count	23	10	33	
	Expected Count	21.1	11.9	33.0	
Slipping Hazard	Count	55	40	95	
	Expected Count	60.6	34.4	95.0	
Total	Count	97	55	152	
	Expected Count	97.0	55.0	152.0	

Toaster			age		Total
			0	100	
Burn (Heat)	Count	52	35	87	
	Expected Count	53.5	33.5	87.0	
Electric Shock	Count	32	19	51	
	Expected Count	31.4	19.6	51.0	
Fire Hazard	Count	44	26	70	
	Expected Count	43.1	26.9	70.0	
Total	Count	128	80	208	
	Expected Count	128.0	80.0	208.0	

Treadmill			age		Total
			0	100	
Falling Hazard	Count	45	26	71	
	Expected Count	43.6	27.4	71.0	
Incomplete Thought	Count	22	12	34	
	Expected Count	20.9	13.1	34.0	
Misc. Non Hazard	Count	43	31	74	
	Expected Count	45.5	28.5	74.0	
Total	Count	110	69	179	
	Expected Count	110.0	69.0	179.0	

Wires on floor			age		Total
			0	100	
Electric Shock	Count	37	16	53	
	Expected Count	31.7	21.3	53.0	
Fire Hazard	Count	21	19	40	
	Expected Count	23.9	16.1	40.0	
Incomplete Thought	Count	17	9	26	
	Expected Count	15.6	10.4	26.0	
Tripping Hazard	Count	53	42	95	
	Expected Count	56.8	38.2	95.0	
Total	Count	128	86	214	
	Expected Count	128.0	86.0	214.0	

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