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Gender Differences in Consumer Product Hazard Perceptions

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Abstract

The present research examined consumer product perceptions as a function of subject gender and product masculinity and femininity. Twenty-five males and 40 females rated 72 products on the dimensions of product masculinity/femininity, hazardousness, frequency of use, confidence in knowing the hazards, and knowledge of severe personal injury. The results indicate that there are gender differences in consumer product hazard perceptions. Implications for consumer education are briefly discussed.

Introduction

An important consideration for the prevention of consumer product accidents is how people perceive hazards. Recent research has examined several factors related to hazard perceptions. This research indicates that people are more likely to look for and read warnings on products that they perceive as being hazardous (Godfrey, Allender, Laughery, & Smith, 1983; Wogalter, Desaulniers, & Brelsford, 1986). Less familiar products are judged more hazardous than familiar products (e.g., Godfrey, Allender, Laughery, & Smith, 1983; Godfrey & Laughery, 1984). But apparently people base their hazard judgments primarily on the severity of injury that they might receive (Wogalter, Desaulniers, & Brelsford, 1987).

Surprisingly little research has been reported examining person factors or individual differences in hazard perceptions. There have been some reports on individual differences in risk-taking (Purswell, Krenek, & Dorris, 1987) and age (Martin & Heimstra, 1973; Vanderplas & Vanderplas, 1980). Gender differences have also been investigated. Godfrey, et al. (1983) reported that females are more likely than males to look for warnings on products perceived as hazardous. LaRue and Cohen (1987) found that, in general, females were more willing to

read warnings on products than were males. But, males were willing to read warnings on products that they perceived to be hazardous. The results of Godfrey et al. (1983) and LaRue and Cohen (1987) indicate that males and females perceive product hazards differently.

The purpose of the present research was to reexamine hazard perception differences between males and females. The present research also explored whether gender differences are moderated by another product perception factor, namely, the products' attributed masculinity and femininity. Would females perceive more masculine-attributed products as more hazardous than would males? Would the converse also be true?

Other variables were also examined with regard to subject gender and product masculinity/femininity attributions. Subjects provided information on frequency of use, confidence in knowing the hazards, and personal knowledge of severe injury for each of the 72 products. Lastly, another gender-related variable was examined to determine whether subjects with different gender-related personality characteristics had different product perception. Masculinity/femininity of the subject was assessed by the Bem Sex-Role Inventory (BSRI).

Method

Subjects. Twenty-five male and 40 female University of Richmond undergraduates participated for credit in an introductory psychology course.

Stimuli and Materials. Seventy-two generically-named products employed by Wogalter et al. (1986) were used. Subjects received one of two randomly determined orders of product names. The products are shown in Table 1. The questions and anchors were as follows:

1) "How *masculine or feminine* is this product?" The anchors for this question were: (1) very masculine, (2) masculine, (3) slightly masculine, (4) neutral, (5) slightly feminine, (6) feminine, and (7) very feminine.
2) "How *hazardous* do you feel this product is?" The anchors for this question were: (0) not at all hazardous, (2) slightly hazardous, (4) hazardous, (6) very hazardous, and (8) extremely hazardous.
3) "How *often* do you use this product?" The anchors for this question were: (0) not at all, (2) very rarely, (4) sometimes, (6) frequently, and (8) very frequently.
4) "How *confident* do you feel you are in *knowing all the hazards* related to this product?" The anchors for this question were: (0) not confident at all, (2) slightly confident, (4) confident, (6) very confident, and (8) extremely confident.
5) "In your experience, how *severely have you or someone you know been injured* by this product?" The anchors for this question were: (0) not injured at all, (2) slightly injured, (4) moderately injured, (6) severely injured, and (8) extremely severely injured.

Procedure. Subjects were instructed to read the entire list of products before making their ratings in order to familiarize themselves with the variety of products listed. They were told to assume that the products were from a new manufacturer or had a new brand name. Each subject received a unique random ordering of the five questions. Subjects rated all of the products for a single question before going to the next question. Following the product rating task, subjects completed a short version of the Bem Sex-Role Inventory.

Results

Product Masculinity and Femininity Classification

There are a number of ways to classify products as masculine and feminine. One way is to take those products rated by subjects on either side of the the neutral point on the scale (a rating of "4"). An alternate method is to split the products at the median so that the 50% of the products below this point are categorized as masculine and the 50% above this point are categorized as feminine. Similarly, one could keep only those products outside the interquartile range (the top and bottom 25%). Indeed, still another way to categorize the products is to have another group of subjects rate the products on frequency of use by males and by females, and moreover, by breaking a single masculinity/ femininity scale into two scales (one scale addressing only masculinity

Table 1. Products from Wogalter et al. (1986).

ELECTRICAL	
battery alarm clock	oscillating fan
curling iron	photoflash unit
desk lamp	pocket calculator
digital watch	quartz/space heater
drip coffee maker	sewing machine
electric blanket	sunlamp
electric carving knife	steam iron
electric food slicer	toaster/oven
electric hedge trimmer	transistor radio
flashlight	trash compacter
metal detector	typewriter
microwave oven	vacuum cleaner
CHEMICAL	
antacid	kerosene
apple sauce	lacquer stripper
artificial sweetener	milk
aspirin	nonprescription diet aid
baby powder	oven cleaner
cake mix	roasted peanuts
cough medicine	roll-on deodorant
drain cleaner	shampoo
dried cereal	skin moisturizer
eggs	soap
household bleach	suntan lotion
insecticide/pesticide	whiskey
NON-ELECTRICAL TOOLS	
binoculars	hunting knife
chain saw	inflatable boat
clothesline	ladder
dart game	life vest
football helmet	ping pong table
garden shears	rake
garden sprinkler	screwdriver
gas outdoor grill	scuba gear
gas powered lawn mower	semi-automatic rifle
golf club	three-speed bicycle
hammer	wheel barrow
hiking boot	wood splitter

-low to high, and one scale addressing only femininity). Analyses were employed using all of these methods of classifying products. Since the pattern of results were nearly identical for all methods, we only present the results of the median-split classification method: Products were split at the median (a rating of 3.90), and a mean for the 36 products on either side of this point was taken to produce a masculine and a feminine product score for each subject.

Hazardousness

A 2 (subject gender) X 2 (masculine vs. feminine products) ANOVA was performed using ratings of product hazardousness as the dependent variable. The means are shown in Table 2. There was no significant main effect of gender but the ANOVA showed a significant main effect of product masculinity/femininity, $F(1,63) = 69.94$, $p < .0001$, indicating that

Table 2. *Product ratings as a function of subject gender and product attribution*

	Product Attribution	
	Masculine	Feminine
Hazardousness		
Males	2.69	2.30
Females	3.18	2.46
Confidence in Knowing Hazards		
Males	5.42	4.93
Females	4.69	4.92
Frequency of Use		
Males	2.41	2.93
Females	1.52	3.63
Knowledge of Severe Injury		
Males	1.60	1.09
Females	.89	.76

masculine products were perceived as more hazardous than feminine products. The ANOVA also showed a significant interaction, $F(1,63) = 5.13$, $p < .03$. Females rated the masculine products significantly more hazardous than did males, $t(63) = 2.17$, $p < .04$. Males and females did not judge the hazardousness of the feminine products differently.

Confidence in Knowing the Hazards

A similar 2 X 2 design was used to examine subjects' confidence in knowing all the hazards. The means are shown in Table 2. No significant main effects were shown but the ANOVA yielded a reliable interaction, $F(1,63) = 27.09$, $p < .0001$. Males gave significantly higher confidence ratings to the masculine products than to the feminine products, $t(63) = 4.50$, $p < .001$. Females gave significantly higher confidence ratings to the feminine products than to the masculine products, $t(63) = 2.70$, $p < .01$. Males and females did not differ in their confidence ratings of the feminine products. However, males were marginally more confident than females in knowing the hazards for the masculine products, $t(63) = 1.92$, $p < .06$

Frequency of Use

Another 2 X 2 ANOVA was performed with ratings of frequency of use as the dependent variable. The means are presented in Table 2. There was no main effect of gender, but a significant main effect of product masculinity/femininity was found, $F(1,63) = 225.48$, $p < .0001$. A significant interaction was also found, $F(1,63) = 59.71$, $p < .0001$. Both males and females reported using feminine products significantly more than masculine products, $t(63) = 3.29$, $p < .003$, and $t(63) = 16.57$, $p < .001$, respectively. Males reported using masculine products significantly more than the females did, $t(63) = 5.04$, $p < .001$, while females reported using feminine products significantly more than the males, $t(63) = 3.97$, $p < .001$.

Knowledge of Severe Injury

A 2 X 2 design examined ratings of severity of personal injury experience. The means are shown in Table 2. A significant main effect of gender was found, $F(1,63) = 9.28$, $p < .01$, indicating that males had more injury experience with the products than the females did. A significant main effect of product masculinity/femininity was also found, $F(1,63) = 29.28$, $p < .001$. There was also a significant interaction, $F(1,63) = 12.21$, $p < .001$. Males had significantly more knowledge of severe injury for masculine products than the females did, $t(63) = 3.95$, $p < .01$. There was no significant difference for the feminine products. Both males and females had significantly more knowledge of severe injury for masculine products than for feminine products, $t(63) = 6.10$, $p < .001$, and $t(63) = 2.08$, $p < .05$, respectively.

Correlations for Males and Females

Other analyses examined the overall intercorrelations of the ratings for males and females separately. Using product means as the random variable, 72 means were obtained for each question by collapsing across subject ratings. Separate correlations for males and females are shown in Table 3. In general, the pattern of correlations support the ANOVA results. Some of the results from this analysis are not redundant from the ANOVA results. For females, and not for males, as the perceived hazardousness of a product increased, confidence in knowing the hazards decreased. For both males and females, as hazardousness increased, frequency of use decreased and severity of personal injury experience increased. For males, as confidence in knowing the hazards increased, frequency of use and injury experience increased. Females reported increased confidence for frequently used products only. Males, but not females, reported having increased personal injury experience with products that were used less frequently.

Testing Correlations Between Males and Females

For the correlations in Table 3, we tested whether differences in product attributions existed between the males and females using z' transformations. Three comparisons were significant. As perceived hazardousness and product masculinity increased, males reported

Table 3. Intercorrelations of the ratings using product means as the random variable or males and females.

		Hazard	Prd M/F	Confid	Freq
Prd M/F	M:	-.168			
	F:	-.288*			
Confid	M:	.061	-.464**		
	F:	-.404**	.128		
Freq	M:	-.421**	-.107	.291*	
	F:	-.491**	.458**	.525**	
Injury	M:	.810**	-.313**	.310**	-.228*
	F:	.697**	-.128	.064	-.202

Note: M = Male F = Female
Hazard = Hazard Rating
Freq = Frequency of Use
Prd. M/F = Product Masculinity/Femininity
Confid = Confidence in Knowing all Associated Hazards
Injury = Knowledge of Severe Injury.
* $p < .05$
** $p < .01$

being significantly more confident in knowing the hazards than females, $z' = 2.14$, $p < .05$, and $z' = 2.15$, $p < .05$, respectively. Also, as the perceived masculinity of the product increased, males reported using the product significantly more than did females, $z' = 3.29$, $p < .01$.

Subject Masculinity/Femininity

The responses from the BSRI were used to classify subjects along two dimensions: masculinity (high versus low) and femininity (high versus low). Using the product ratings as dependent variables, the results of 2 X 2 ANOVAs showed that subjects low on femininity perceived the products to be more masculine than did subjects high on femininity, $F(1,63) = 10.88$, $p < .002$. Low-feminine subjects reported more personal knowledge of severe injury than high-feminine subjects, $F(1,61) = 6.67$, $p < .02$. Similarly, high-masculine subjects reported increased personal injury experience over low-masculine subjects, $F(1,61) = 4.53$, $p < .04$.

Discussion

We examined whether males and females differed in their perceptions of common consumer products. We also examined whether perceptions differed with respect to attributions of product masculinity and femininity. The results indicate that males and females view common consumer products differently.

In general, products that were more frequently used by subjects also tended to be judged less hazardous and more feminine. These products were also associated with more confidence in knowing the hazards and with less personal injury experience. The masculine products tended to have the opposite characteristics. For females, the more hazardous products were perceived as being more masculine, but for males, hazardousness was not related to masculinity/femininity. A similar pattern is seen for confidence in knowing the hazards.

On the basis of product masculinity/femininity, all subjects rated masculine products as more hazardous than feminine products. Across the dependent variables, males and females differed to a greater extent on perceptions of the masculine products than on the feminine products. Males were more confident in knowing all hazards for the masculine products than were females. It is possible that males simply have more experience with the products rated as more hazardous and therefore have greater confidence in knowing how they might be injured. However, there were no gender differences in hazard perception for the feminine products, even though females reported using feminine products significantly more than did males. This suggests that males might be overconfident, which could lead to errors in judgments of hazard perception for feminine products.

Our results suggest that personality might also be a factor affecting product perceptions. Subject masculinity/femininity was related to perception of masculinity/femininity of the

products and knowledge of severe personal injury. Many other subject/personality variables have yet to be investigated.

Previous research shows that for more hazardous products, individuals report that they would be more likely to look for a warning (Godfrey, et al., 1983) and would be more willing to read a warning (Wogalter, et al., 1986). However, Godfrey and Laughery (1984) showed that women misperceived the risk of tampons due in part to familiarity with the product. They demonstrated that female users failed to reevaluate the familiar product and take increased precaution, when in fact, the changes made to the product made it more dangerous than it was before. The present research showed that females perceive feminine products as less hazardous. Together with previous research, this suggests that females may take less precaution and might miss warnings and instructions on products. Males may be at risk in using feminine-attributed products because of an inflated confidence in knowing the associated hazards. Similarly, females may be at risk when using highly familiar products in which they take fewer precautions. Because consumers may inappropriately believe they know the hazards for a product, they may fail to behave with an adequate level of precaution. Therefore, products targeted for or used by specific groups may need warnings designed or displayed to overcome their particular perceptual biases. Furthermore, it seem that manufacturers need to also consider that persons other than the target group may use the product and that these users should have appropriate warnings.

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