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SOCIOECONOMIC AND PERSONALITY CHARACTERISTICS AS THEY RELATE TO ECOLOGICALLY-CONSTRUCTIVE PURCHASING BEHAVIOR

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BACKGROUND

This paper is based on dissertation research conducted by Thomas C. Kinnear under the direction of Associate Professor James R. Taylor. The paper will be presented at the Association for Consumer Research Conference at the University of Chicago, November, 1972.

ABSTRACT

The purpose of this study was to analyze the relationship between the socioeconomic and personality characteristics of respondents and the amount, if any, of ecological concern in their buying behavior. The sample consisted of 500 female panel members of the Canadian Family Opinion-University of Western Ontario Consumer Panel. Results of the study indicate that several socioeconomic and personality variables are related to ecologically-constructive buying behavior such as use of nonphosphate laundry products, use of returnable bottles, and the existence of atypical shopping patterns.

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SOCIOECONOMIC AND PERSONALITY CHARACTERISTICS AS THEY RELATE TO ECOLOGICALLY-CONSTRUCTIVE PURCHASING BEHAVIOR

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INTRODUCTION

Personal consumption has important ecological implications. Individuals in North America create as much solid waste as manufacturing does.[1] Automobile exhaust accounts for a significant proportion of air pollution. Phosphate in laundry detergents has been identified as a significant source of water pollution in the Great Lakes.[2] Glass bottles and aluminum cans present special disposal problems because they do not deteriorate under normal disposal methods. Pesticides and fertilizers for home use also contribute to the pollution of water resources. So it appears that the wisdom buyers exercise in their purchase decisions with regard to these types of products can either help maintain the environment or contribute to its deterioration.

The purpose of this paper is to analyze the relationship between the socioeconomic and personality characteristics of respondents and the amount, if any, of ecological concern in their buying behavior. Examination of the relationship of socioeconomic and personality characteristics to

consumer purchase behavior has received much attention in the literature. In 1968 Frank provided a discussion of the relative levels of success in using these types of predictors.[3] At that time he concluded that socioeconomic and personality characteristics had not proven to be very useful predictors. Since that time some success has been obtained in relating personality characteristics to product choices. Fry identified relationships of significant magnitude between personality variables and cigarette brand choice.[4] Alpert also concluded that personality is a useful construct in identifying the determinants of product choice.[5]

Both socioeconomic and personality factors can be conceived of as important when brands of products with ecological implications are chosen. Purchasing of ecologically-safe products may be the norm of a particular age group, may require higher incomes to cover the extra costs, or may require a person to have more education so he can understand and appreciate the importance of his individual consumption patterns. Further, one's purchasing pattern in relation to pollution may be a way for the consumer to display his personality structure.

Here we are concerned with the ability of certain predictors to aid in classifying respondents into groups of doers and non-doers according to whether or not they choose products which are ecologically constructive. The Automatic Interaction Detector (AID) and Multiple Classification Analysis (MCA) programs are the primary analysis techniques utilized for this purpose. Three behavioral measures are analyzed individually. These measures are:

(1) The use of a nonphosphate laundry product

(2) The use of returnable bottles

(3) The existence of an unusual shopping pattern in order to purchase nonpolluting products; i.e., did the consumer alter her usual shopping procedure with the intent of obtaining nonpolluting products?

Each of these measures was coded "1" if it occurred and "0" if it did not occur. Since there is only one interval on the dependent variable, the metric assumption of both AID and MCA is satisfied.

The Data

The behavioral data utilized in this paper were collected by means of a questionnaire that was mailed to 698 members of the Canadian Family Opinion--University of Western Ontario Consumer Panel. Useable questionnaires were returned by 500 panel members, constituting 72 per cent of the panel. Comparison of the socioeconomic characteristics of panel members who answered the questionnaire with those who did not answer it did not indicate any significant differences.

The personality measures were collected previously by Sadrudin A. Ahmed as part of his dissertation research. He obtained data for the personality scales from only 348 of the 500 respondents. The others are treated as missing data.

Description of the Independent Variables

Twenty independent variables were available as possible predictors in separating the doers and nondoers. Seven of the predictors were socioeconomic. They are:

(1) Age of Wife

(2) Presence of Children

(3) Education of Wife

(4) Education of Husband

(5) Employment of Wife

(6) Occupation of Principal Wage Earner

(7) Family Income

Twelve of the predictors were provided by scores on standard personality scales. These scales are listed below and described in the following section:

(8) Aggression

(9) Anxiety

(10) Depression

(11) Desirability

(12) Dominance

(13) Harm Avoidance

(14) Play

(15) Rebelliousness

(16) Self-esteem

(17) Sentience

(18) Understanding

(19) Tolerance

(20) The final predictor--Perceived Consumer Effectiveness--is a measure of the extent to which a respondent believes that an individual consumer can be effective in pollution abatement. This variable was obtained from responses to the following statement in the questionnaire: "It is futile for the individual consumer to try to do anything about pollution."

Those who strongly disagreed with this statement were assigned to the highest category of Perceived Consumer Effectiveness; those who strongly agreed were assigned to the lowest category, and those who responded moderately were assigned to middle categories.

The Standard Personality Scales

The measurement of personality in this paper follows the trait-type tradition of Murray.[6] The basic assumptions of trait theory are that personality is made up of certain definite attributes that are common to many people, vary in amount, and can be measured by indicators. Further, it is assumed that traits are relatively stable and exert generalized causal effects on behavior.[7]

The twelve personality scales utilized were developed by Douglas N. Jackson to discriminate between individuals in the normal range of psychological makeup. The Aggression, Desirability, Dominance, Harm Avoidance, Play, Sentience, and Understanding scales are taken from his Personality Research Form.[8] Self-esteem, Tolerance and Anxiety scales are derived from the Jackson Personality Inventory,[9] and the Rebelliousness and Depression scales come from Jackson's Differential Personality Inventory.[10] A description of the high scorer on each of these scales is presented in the Appendix. All of the Jackson personality scales contained from fifteen to twenty categories. Since the many categories would cause degrees of freedom problems in MCA runs, all personality scales were condensed into five categories plus a missing data category.

The twenty independent variables were analyzed using the AID procedure for each of the three behavioral measures under consideration. Tables 1, 2, and 3 show the results of the AID analysis on the use of a nonphosphate

brand of soap, the use of returnable bottles, and the existence of an unusual shopping pattern, respectively. Each predictor was treated as nominal in order to allow for the possibility of curvilinear splits. These tables were examined to determine the best predictors for each dependent variable. Table 4 presents the predictors that were selected to be run in the MCA analysis for each dependent variable.

Presentation of MCA Results

The estimates produced by MCA are shown in Tables 5, 6, and 7. A number of calculations are presented for each predictor. The unadjusted coefficient is the deviation from the grand mean associated with the categories of any predictor taken by itself. The adjusted coefficient is the deviation from the grand mean associated with the categories of any predictor taking into account the effects of all other predictors. Because doers are coded "1" on the dependent variable and nondoers are coded "0," a special interpretation of the MCA results is possible. The grand mean can be interpreted as the probability that a respondent selected at random from the sample will undertake the behavior being examined in the MCA run. The coefficients produced by MCA then represent changes in this overall probability associated with the knowledge that a respondent falls into a particular category of a predictor variable.

Use of a Nonphosphate Laundry Product

The overall probability that a respondent will use a nonphosphate brand is .367. Table 5 shows the adjusted effects of each predictor. The most important predictors are:

1. Perceived Consumer Effectiveness

Those scoring in the highest category of Perceived Consumer Effectiveness are substantially more likely to purchase a non-phosphate laundry product than those in the lower categories. The adjusted probability of this purchase increases by .164, to .531, with knowledge that a respondent is in the highest category. Those scoring in the middle three categories in Perceived Consumer Effectiveness have a probability of purchase much below the over-all average. Those in the lowest category are above average.

2. Presence of Children

Those respondents with children in all three age groups (under 6, 6-12, and 13-18) and those with children under 6 and aged 13-18 show an adjusted probability of .683 and .631 that they will purchase a nonphosphate soap. The latter category has a very small sample size associated with it, and this fact may have affected the coefficient. There appears to be something in the dynamics of families of these types that is associated with the purchase of a nonphosphate brand. The discussion section of this paper examines these dynamics in more detail.

3. Income

Only the highest Income category has a meaningful effect on the probability of this purchase. Those with incomes of $15,000 and over have an adjusted probability of purchase of .469, which is .102 above average.

4. Harm Avoidance

An increasing Harm Avoidance score is associated with a relatively stable pattern in the probability of this purchase until the highest category is reached. At this point the probability falls substantially below average to .199.

All other predictors yield small or relatively random changes in probability.

Use of Returnable Bottles

Table 6 shows the MCA results associated with the use of returnable bottles. The overall probability that a respondent will use returnable bottles is .589. The most important predictors are:

1. Perceived Consumer Effectiveness

   Those scoring highest in Perceived Consumer Effectiveness have an adjusted probability of purchase of returnable bottles of .672, which is .083 above the average. Those scoring the lowest have a probability of .075 below the average. Those in the middle three categories are also below average. There is no evidence of a curvilinear relationship in this instance.

2. Presence of Children

   Those with children in all three age groups are substantially more likely to purchase returnable bottles than those without children. The probability of this purchase increases by .175, to .764. Those families with children under 19 are associated with a decrease in probability of .104, to .435. The same dynamics as noted previously seem to be operative again (see Discussion section).

All other predictors yield small or relatively random changes in probability.

Existence of an Unusual Shopping Pattern

Table 7 shows the MCA results associated with the existence of an unusual shopping pattern. The overall probability that a respondent will

indicate the existence of such a pattern is .150. The most important predictors are:

1. Perceived Consumer Effectiveness

Those scoring in the highest category of Perceived Consumer Effectiveness are again more likely than the average to undertake an unusual shopping pattern. The highest scorers have an adjusted coefficient of .064, which yields a probability of .214. Those scoring in the middle three categories have below average probability of undertaking an unusual shopping pattern. The nineteen respondents in the lowest category are again above average. The possible curvilinear pattern that was noted for the use of a nonphosphate laundry product is also evident here.

2. Aggression

Low scorers in the Aggression category are much less likely than the average to indicate an unusual shopping pattern. The lowest category has an adjusted probability of .040. Those scoring highest have an adjusted probability of .234. It appears that as aggression increases, the respondents are more likely to undertake unusual shopping behavior.

3. Tolerance

The highest scorers in the Tolerance category are much more likely than the average to indicate an unusual shopping pattern. Their adjusted probability is .132 above average, yielding a probability of .282.

4. Income

Those with incomes of $15,000 and over have an adjusted probability of purchase of .015. This is .135 below the average. No other income category produces marked deviations from average probability.

5. Education of Husband

Those respondents whose husbands have a university or college education are more likely than the average to indicate an unusual shopping pattern. Those whose husbands have only an elementary school education or those who have no husband are less likely than the average to indicate an unusual shopping pattern.

DISCUSSION

Role of Perceived Consumer Effectiveness

The role of Perceived Consumer Effectiveness is very similar for all three behavioral measures. Respondents scoring in the highest category of Perceived Consumer Effectiveness have a higher probability than the average of undertaking ecologically-constructive behavior. Those in the middle three categories are associated with a below-average probability. The lowest category is associated with an above-average probability, that they will use a nonphosphate laundry product and will go out of their way to buy nonpolluting products. These latter results are associated with a small sample size. If they are, indeed, valid, then the relationship between Perceived Consumer Effectiveness and these measures of ecological concern is curvilinear. There does not appear to be an intuitively-appealing explanation of this possible curvilinear relationship.

If the latter results are not valid, then an intuitively-appealing explanation is available. That is, as respondents perceive that consumers are increasingly effective in pollution abatement, then they are more likely to demonstrate concern for ecology.

Presence of Children

As we have seen, respondents with children in all three age-group categories (under 6, 6-12, and 13-18) indicate a much higher than average probability that they will use a nonphosphate laundry product and returnable bottles than do respondents without children. There appears to be something in the dynamics of families of this type that is associated with their buying activities, although these dynamics are not clear. It may be that with the increase in the number of children in a family, the possibility that one of the children will successfully influence the mother to undertake ecologically-maintaining purchasing behavior increases. On the other hand, it may be that interaction among the children gives rise to a unified position that the mother should purchase in an ecologically-constructive fashion. This unified pressure may be stronger than the pressure exerted by children in other types of families. The data collected for this paper do not bring any evidence to bear on the possible dynamics, and, therefore, no definitive statement can be made.

Use of a Nonphosphate Laundry Product

In addition to Perceived Consumer Effectiveness and the presence of children, we have found that the use of a nonphosphate laundry product is related mainly to the presence of an income of $15,000 and over. High income may play a facilitating role, i.e., respondents in this income range may be less concerned with the possible extra costs of nonphosphate laundry products.

The deviations associated with Harm Avoidance present an increasing pattern. The lowest scorers on this trait have a small negative deviation. As Harm Avoidance scores rise, the deviations become increasingly positive, until the highest Harm Avoidance category is reached. At this point the deviation becomes substantially negative.

The increase in probability of purchase through four categories is an intuitively-appealing result. It is expected that a person concerned about being harmed by pollution would demonstrate more concern about the ecology. However, those highest in Harm Avoidance are least concerned with ecology. It appears that when Harm Avoidance related to pollution becomes extremely high, a person reacts by ignoring it to a great extent. They think that the solution to potential pollution harm is to avoid thinking or doing much about it. This finding is consistent with research findings on the use of fear appeals in communications. In these studies it has been found that strong appeals to fear are less effective in persuasion than minimal appeals because too much tension is created by the strong appeals.[8] People exposed to a strong fear appeal tune out the communication. In much the same way, those scoring highest in the personality trait, Harm Avoidance, tune out potential pollution concern.

Thus, ability to predict whether a respondent will use a nonphosphate laundry product is most enhanced by knowledge of her Perceived Consumer Effectiveness score, the presence of children in her family, and her family income. For example, a respondent who is in the highest category of Perceived Consumer Effectiveness, has children in all three age groups, has an income of $15,000 or more, and is in the middle category of all other predictors, would have a .944 probability of purchasing a nonphosphate laundry product. The calculation is as follows:

Estimated probability = Grand mean

+ effect of being in the highest category of Perceived Consumer Effectiveness

+ effect of having children in all three age groups
+ effect of having an income of $15,000 and over
+ Effect of being in the middle category of Aggression, Self-esteem, Tolerance, Understanding, Dominance, Harm Avoidance, and Play

Therefore:

Estimated probability = .367 + .164 + .316 + .102
+ (-.059 + .069 - .049 + .058
- .035 + .032 - .021)
= .367 + .164 + .316 + .102 - .005
= .949 - .005
= .944

Use of Returnable Bottles

The knowledge of Perceived Consumer Effectiveness scores and the Presence of Children category have a marked effect on the ability to predict the use of returnable bottles. For example, a respondent who is in the highest category of Perceived Consumer Effectiveness, has children in all three age groups, and is in the middle category of all other predictors,would have a .705 probability of using returnable bottles. The calculations are:

Estimated probability = Grand mean

+ effect of being in the highest category of Perceived Consumer Effectiveness
+ effect of having children in all three age groups
+ effect of being in the middle category of Income, Aggression, Depression, Tolerance, Understanding, Anxiety, Dominance, and Play

Therefore,

$$\begin{aligned}\text{Estimated probability} = {} & .589 + .083 + .173 \\ & + (-.026 - .089 + .061 + .015 \\ & \quad - .053 - .038 - .084 + .079) \\ & = .589 + .083 + .173 - .140 \\ & = .845 - .140 \\ & = .705\end{aligned}$$

Existence of an Unusual Shopping Pattern

Besides the Perceived Consumer Effectiveness score, Aggression, Tolerance, Income, and Education of Husband are the most useful predictors of the existence of an unusual shopping pattern. Aggression was not markedly related to any other behavioral measure. It appears that the alteration of one's shopping pattern is a very different type of decision than that for the other two behavioral measures. Respondents who are highly assertive are more likely to undertake this behavior.

High scorers in Tolerance are more likely to alter their shopping pattern. It appears that the alteration of one's habitual shopping pattern requires an above average amount of openness to new ideas and ways.

It was noted previously that respondents with incomes of $15,000 and over were more likely to purchase a nonphosphate laundry product and were more likely to have higher scores on the ecological concern index. It is interesting to note that these respondents are much less likely than the average to undertake an unusual shopping pattern. Apparently these respondents are willing to purchase ecologically-constructive laundry products but are unwilling to go out of their way to do so. People with high incomes are, perhaps, too used to convenience in their shopping to expend a special effort.

Respondents whose husbands have a college or university education are more likely to undertake an unusual shopping pattern. This result, in combination with the results noted above about high income families, is confusing. It is logical to expect that college-educated people would have higher incomes. Why then would a college education be positively associated with an unusual shopping pattern while high incomes are negatively associated with it? This pattern of results holds also when the education and income levels are examined before adjustments are made for other factors (see Table 7). No clear answer is available.

All four variables--Perceived Consumer Effectiveness, Aggression, Tolerance, and Education--influence the probability of the undertaking of an unusual shopping pattern. For example, a respondent who is in the highest category of Tolerance, whose husband has a college education, and is in the middle category of all other predictors, has a .486 probability of undertaking an unusual shopping pattern.

Estimated probability = Grand mean

+ effect of being in the highest category of Perceived Consumer Effectiveness

+ effect of being in the highest category of Aggression

+ effect of being in the highest category of Tolerance

+ effect of husband having a college education

+ effect of being in the middle category of Income, Age, Harm Avoidance, Play, and Rebelliousness

Therefore:

Estimated probability = .150 + .064 + .084 + .132
+ .085 + (- .005 - .009 - .010
+ .056 - .061)
= .150 + .064 + .084 + .132
+ .085 - .029
= .515 - .029
= .486

TABLE 1

Use of Nonphosphate Laundry Product: Proportion of Variation Explainable for Each Predictor (Percentage)

Predictor	Group Number												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Age of Wife	.015	.016	.015	.006	.033	.005		.018	.053	.031	...		.041
Presence of Children	.022	.029*	.078*	.008	.002	.012		.035	.010	.016	...		.028
Education of Wife	.004	.001	.002	.005	.003	.000		.000	...	.004	...		.001
Education of Husband	.003	.001	.012	.023	.007	.010		.026	...	.013	...		.020
Employment of Wife	.010	.001	.045	.006	.007	.034		.073	.020	.001	...		.000
Occupation	.010	.012	.020	.080*	.014	.047		.039	.060	.015	...		.015
Income	.008	.008	.006	.052	.009	.002		.048	.034	.026	.026		.025
Perceived Consumer Effectiveness	.083*	.022	...	.002	.036	...		...	...	.012	...		.012
Aggression	.055	.099	.022	.037	.010	.016		.049	.090*	.017	.045		.016
Depression	.017	.011	.027	.047	.012	.031		.041	.046	.027	.021		.010
Self-esteem	.010	.017	.024	.046	.029	.045		.118	.072	.056*	.005		.022
Sentience	.008	.018	.018	.020	.025	.020		.086	.048	.021	.063		.043
Tolerance	.009	.019	.031	.020	.047	.046		.136*	.041	.030	.022		.050
Understanding	.010	.017	.010	.040	.060*	.011		.026	.048	.006	.020		.016
Anxiety	.015	.017	.039	.008	.029	.038		.040	.057	.006	--		.025
Desirability	.010	.009	.020	.033	.013	.030		.103	.041	.015	.031		.036
Dominance	.006	.027	.018	.036	.058	.014		.025	.072	.038	.103*		.050*
Harm Avoidance	.017	.028	.009	.040	.039	.013		.014	.043	.025	...		.043
Play	.015	.019	.046	.029	.029	.050*		.015	.034	.032	...		.038
Rebelliousness	.022	.024	.028	.011	.038	.042		.090	.065	.034	.032		.037

*AID split on this variable.

TABLE 2

Use of Returnable Bottles: Proportion of Variation Explainable for Each Predictor (Percentage)

Predictor	Group Number											
	1	2	3	4	5	6	7	8	9	10	11	12
Age of Wife	.014	.016	.001	.016	.047	.025			.016	.046		.013
Presence of Children	.022*	.001	.002	.008	.060	.004			.006	.035		.002
Education of Wife	.000	.017	.004	.004	.011	.007			.020	.004		.028
Education of Husband	.000	.003	.003	.004	...	.011			.004	.013		.011
Employment of Wife	.006	.001	.010	.017	...	.002			.016	...		.017
Occupation	.020	.054*	.013	.018	.054	.013			.014	.010		.010
Income	.009	.019	.012	.022	.007	.027			.024	.044		.029
Perceived Consumer Effectiveness	.013	.034	.023	.037	.020	.028			.030	.029		.042*
Aggression	.019	.023	.018	.019	.068	.027			.038	.009		...
Depression	.010	.016	.026	.047*	.008	.037			.025	.009		...
Self-esteem	.009	.006	.022	.018	.042	.022			.054	.025		...
Sentience	.014	.014	.027	.027	.040	.037			.050	.025		...
Tolerance	.006	.019	.009	.025	.020	.046			.068*	.012		...
Understanding	.021	.044	.018	.006	.034	.074*			.044	.011		...
Anxiety	.012	.008	.022	.016	.047	.042			.046	.047*		...
Desirability	.011	.025	.014	.016	.008	.059			.049	.044		...
Dominance	.018	.018	.028*	.002	.017	.028			.019	.014		...
Harm Avoidance	.011	.008	.022	.022	.051	.029			.040	.029		...
Play	.015	.021	.017	.016	.088*	.043			.042	.021		...
Rebelliousness	.013	.011	.015	.019	.080	.034			.028	.018		...

*AID split on this variable.

TABLE 3

Existence of an Unusual Shopping Pattern: Proportion of Variation Explainable for Each Predictor (Percentage)

Predictor	Group Number										
	1	2	3	4	5	6	7	8	9	10	11
Age of Wife	.006	.009	.019	.015	.036	.062		.006			.043*
Presence of Children	.013	.018	.020	.021	.035	.040		.011			.033
Education of Wife	.013	.015	.002	.001	.005	.003		.013			...
Education of Husband	.020	.038*	.027	...	.013	.026		.006			.023
Employment of Wife	.003	.005	.003	...	.007	...		.002			...
Occupation	.011	.012	.011	.025	.023	.026		.013			.026
Income	.016	.027	.017	.037	.023	.026		.021			.038
Perceived Consumer Effectiveness	.033*	.022	...	...	...	...		.018			...
Aggression	.016	.018	.028*	.002	.011	.005		.021			...
Depression	.007	.012	.015	...	.052	.039		.014			...
Self-esteem	.008	.027	.014	.017	.040	.005		.019			...
Sentience	.009	.022	.008	.079	.019	.035		.018			...
Tolerance	.012	.034	.017	.010	.065*	.006		.061*			...
Understanding	.016	.012	.015	.069	.021	.018		.043			...
Anxiety	.005	.024	.010	.072	.030	.020		.024			...
Desirability	.007	.010	.101	.064	.046	.033		.016			...
Dominance	.101	.013	.016	.029	.046	.033		.018			...
Harm Avoidance	.008	.026	.007	.112*	.046	...		.029			...
Play	.007	.034	.015	.103	.023	.020		.045			...
Rebelliousness	.010	.014	.023	.054	.060	.063*		.015			...

*AID split on this variable.

TABLE 4

The Predictors Used in MCA Runs as They Relate to Three Behavioral Measures of Ecological Concern

Dependent Variable		
Nonphosphate Laundry Product	Returnable Bottles	Existence of an Unusual Shopping Pattern
Perceived Consumer Effectiveness	Perceived Consumer Effectiveness	Perceived Consumer Effectiveness
Aggression	Aggression	Aggression
Self-esteem	...	...
Tolerance	Tolerance	Tolerance
Understanding	Understanding	...
Dominance	Dominance	...
Harm Avoidance	...	Harm Avoidance
Play	Play	Play
Income	Income	Income
Presence of Children	Presence of Children	...
...	Depression	...
...	Anxiety	...
...	...	Age of Wife
...	...	Education of Husband
...	...	Rebelliousness

TABLE 5

MCA Results with the Use or Nonuse of Nonphosphate Laundry Products as Dependent Variable

Factor	Number of Cases	Unadjusted Mean	Unadjusted Coeffieient	Adjusted Mean	Adjusted Coefficient
Presence of Children					
None under 19	133	.368	.001	.366	-.001
Under 6 only	75	.347	-.020	.343	.007
6-12 only	55	.345	-.021	.383	.016
13-18 only	71	.380	.014	.358	-.009
Under 6 and 6-12	62	.242	-.125	.223	-.144
6-12 and 13-18	76	.381	.015	.398	.011
All 3 age groups	20	.700	.333	.683	.316
Under 6 and 13-18	4	.500	.133	.631	.264
Missing data	3	.667	.300	.658	.291
Eta^2 = .03					
Income					
Under $5,000	50	.320	-.047	.351	-.016
$5,000 to $6,999	112	.330	-.036	.359	-.008
$7,000 to $9,999	181	.364	-.002	.367	.000
$10,000 to $14,999	110	.373	.006	.353	-.014
$15,000 and over	31	.516	.149	.469	.102
Missing data	15	.467	.099	.365	-.002
Eta^2 = .01					

TABLE 5 (Continued)

MCA Results with the Use or Nonuse of Nonphosphate Laundry Products as Dependent Variable

Factor	Number of Cases	Unadjusted Mean	Unadjusted Coefficient	Adjusted Mean	Adjusted Coefficient
Perceived Consumer Effectiveness					
1	19	.526	.160	.521	.154
2	60	.183	-.183	.190	-.176
3	35	.114	-.252	.155	-.212
4	202	.297	-.070	.294	-.073
5	179	.536	.170	.531	.164
Missing data	4	.500	.133	.506	.139
Eta^2 = .09					
Aggression					
1	51	.431	.065	.381	.014
2	71	.423	.056	.360	-.007
3	82	.341	-.025	.308	-.059
4	89	.348	-.018	.323	-.044
5	55	.345	-.021	.335	-.032
Missing data	151	.351	-.016	.435	.068
Eta^2 = .01					
Self-esteem					
1	71	.366	-.001	.356	-.011
2	73	.329	-.038	.383	.016
3	58	.414	.047	.436	.069
4	66	.439	.073	.414	.047
5	80	.338	-.029	.303	-.064
Missing data	151	.351	-.016	.351	-.016
Eta^2 = .01					

TABLE 5 (Continued)

MCA Results with the Use or Nonuse of Nonphosphate Laundry Products as Dependent Variable

Factor	Number of Cases	Unadjusted Mean	Unadjusted Coefficient	Adjusted Mean	Adjusted Coefficient
Tolerance					
1	58	.362	-.005	.416	.049
2	66	.333	-.033	.350	-.017
3	90	.322	-.045	.318	-.049
4	74	.432	.066	.414	.047
5	60	.433	.067	.393	.026
Missing data	151	.35.	-.016	.351	-.016
Eta^2 = .01					
Understanding					
1	70	.214	-.152	.299	-.078
2	75	.387	.020	.371	.003
3	78	.449	.082	.425	.058
4	71	.423	.056	.415	.048
5	54	.389	.022	.363	-.004
Missing data	151	.351	-.016	.351	-.016
Eta^2 = .02					
Dominance					
1	68	.412	.045	.435	.069
2	89	.382	.015	.401	.034
3	61	.311	-.055	.331	-.035
4	68	.382	-.016	.324	-.042
5	62	.371	.004	.362	-.005
Missing data	151	.351	-.016	.351	-.016
Eta^2 = .00					

TABLE 5 (Continued)

MCA Results with the Use or Nonuse of Nonphosphate Laundry Products as Dependent Variable

Factor	Number of Cases	Unadjusted Mean	Unadjusted Coefficient	Adjusted Mean	Adjusted Coefficient
Harm Avoidance					
1	68	.353	-.014	.347	-.020
2	79	.418	.051	.424	.057
3	71	.380	.014	.399	.032
4	76	.447	.081	.446	.079
5	54	.222	-.144	.199	-.168
Missing data	151	.351	-.016	.351	-.016
Eta^2 = .02					
Play					
1	66	.333	-.033	.321	-.046
2	86	.465	.098	.458	.091
3	88	.318	-.049	.346	-.021
4	59	.339	-.028	.313	-.054
5	49	.408	.041	.421	.054
Missing data	151	.351	-.016	.351	-.016
Eta^2 - .01					

TABLE 6

MCA Results with the Use or Nonuse of Returnable Bottles as Dependent Variable

Factor	Number of Cases	Unadjusted Mean	Unadjusted Coefficient	Adjusted Mean	Adjusted Coefficient
Presence of Children					
None under 19	129	.496	-0.93	.485	-.104
Under 6 only	75	.520	-0.69	.512	-.077
6-12 only	55	.655	.065	.677	.088
13-18 only	71	.634	.045	.620	.031
Under 6 and 6-12	61	.639	.050	.612	.023
6-12 and 13-18	76	.658	.069	.689	.100
All 3 age groups	20	.750	.161	.764	.178
Under 6 and 13-18					
Missing data					
$Eta^2 = .03$					
Income					
Under $5,000	50	.580	-.009	.636	.047
$5,000 to $6,999	109	.624	.035	.625	.036
$7,000 to $9,999	179	.564	-.025	.563	-.026
$10,000 to $14,999	110	.600	.011	.593	.004
$15,000 and over	31	.645	.056	.597	.008
Missing data	15	.467	-.122	.439	-.150
$Eta^2 = .01$					

TABLE 6 (Continued)

MCA Results with the Use or Nonuse of Returnable Bottles as Dependent Variable

Factor	Number of Cases	Unadjusted Mean	Unadjusted Coefficient	Adjusted Mean	Adjusted Coefficient
Perceived Consumer Effectiveness					
1	19	.579	-.010	.514	-.075
2	60	.567	-.022	.540	-.049
3	35	.429	-.161	.453	-.136
4	202	.559	-.030	.561	-.028
5	178	.663	.074	.672	.083
Missing Data	5	.568	-.021	.578	-.011
Eta^2 = .02					
Aggression					
1	50	.640	.051	.511	-.078
2	71	.592	.002	.474	-.115
3	81	.630	.041	.500	-.089
4	89	.629	.040	.470	-.119
5	54	.556	-.034	.431	-.158
Missing Data	149	.537	-.052	.847	.258
Eta^2 = .01					
Depression					
1	114	.640	.051	.621	.032
2	85	.588	-.001	.575	-.014
3	71	.620	.031	.650	.061
4	47	.596	.007	.612	.023
5	28	.571	-.018	.584	-.005
Missing Data	149	.537	-.052	.537	-.052
Eta^2 = .01					

TABLE 6 (Continued)

MCA Results with the Use or Nonuse of Returnable Bottles as Dependent Variable

Factor	Number of Cases	Unadjusted Mean	Unadjusted Coefficient	Adjusted Mean	Adjusted Coefficient
Tolerance					
1	58	.569	-.020	.609	.020
2	64	.625	.036	.652	.063
3	90	.600	.011	.604	.015
4	73	.616	.027	.621	.032
5	60	.650	.061	.570	-.019
Missing Data	149	.537	-.052	.537	-.052
$Eta^2 = .01$					
Understanding					
1	69	.507	-.082	.558	-.031
2	75	.667	.078	.661	.072
3	77	.558	-.031	.536	-.053
4	70	.671	.082	.676	.087
5	54	.667	.078	.637	.048
Missing Data	149	.537	-.052	.537	-.052
$Eta^2 = .02$					
Anxiety					
1	56	.536	-.053	.532	-.057
2	74	.649	.060	.639	.050
3	69	.565	-.024	.551	-.038
4	74	.676	.087	.670	.081
5	72	.611	.022	.644	.055
Missing Data	149	.537	-.052	.537	-.052
$Eta^2 = .01$					

TABLE 6 (Continued)

MCA Results with the Use or Nonuse of Returnable Bottles as Dependent Variable

Factor	Number of Cases	Unadjusted Mean	Unadjusted Coefficient	Adjusted Mean	Adjusted Coefficient
Dominance					
1	68	.588	-.001	.593	.004
2	87	.621	.032	.633	.044
3	61	.508	-.081	.505	-.084
4	67	.731	.142	.710	.121
5	62	.597	.008	.600	.011
Missing Data	149	.537	-.052	.537	-.052
$Eta^2 = .02$					
Play					
1	65	.631	.042	.608	.019
2	86	.523	-.066	.514	-.075
3	86	.674	.085	.668	.079
4	59	.593	.004	.627	.038
5	49	.653	.064	.668	.079
Missing Data	149	.537	-.052	.537	-.052
$Eta^2 = .01$					

TABLE 7

MCA Results with the Existence or Nonexistence of an Unusual Shopping Pattern as Dependent Variable

Factor	Number of Cases	Unadjusted Mean	Unadjusted Coefficient	Adjusted Mean	Adjusted Coefficient
Age of Wife					
Under 25	15	.200	.050	.160	.010
25 - 34	152	.164	.014	.139	-.011
35 - 44	134	.164	.014	.141	-.009
45 - 54	124	.137	-.013	.129	.021
55 and over	61	.066	-.084	.149	-.001
Missing data	3	.667	.517	.174	.024
$Eta^2 = .02$					
Education of Husband					
Some/all elementary school	88	.058	-.091	.059	-.091
Some/all high school	278	.151	.001	.147	-.003
Some/all university or college	100	.230	.080	.235	.085
No husband	21	.048	-.102	.082	-.068
Missing data	3	.667	.517	.667	.517
$Eta^2 = .04$					

TABLE 7 (Continued)

MCA Results with the Existence or Nonexistence of an Unusual Shopping Pattern as Dependent Variable

Factor	Number of Cases	Unadjusted Mean	Unadjusted Coefficient	Adjusted Mean	Adjusted Coefficient
Income					
Under $5,000	50	.060	-.090	.132	-.018
$5,000 to $6,999	118	.148	-.001	.190	.040
$7,000 to $9,999	176	.135	-.013	.144	-.005
$10,000 to $14,999	110	.200	.050	.172	.022
$15,000 and over	29	.138	-.012	.015	-.135
Missing data	15	.267	.177	.091	-.059
Eta^2 = .01					
Aggression					
1	50	.082	-.068	.040	-.110
2	70	.071	-.078	.071	-.084
3	81	.185	-.036	.195	.045
4	88	.170	.020	.175	.025
5	55	.236	.087	.234	.084
Missing Data	145	.145	-.005	.144	.006
Eta^2 = .02					
Tolerance					
1	57	.088	-.062	.112	-.038
2	64	.141	-.009	.122	-.028
3	90	.111	-.039	.130	-.030
4	72	.167	.017	.142	-.008
5	60	.267	.117	.282	.132
Missing data	145	.145	-.005	.145	-.005
Eta^2 = .02					

TABLE 7 (Continued)

MCA Results with the Existence or Nonexistence of an Unusual Shopping Pattern as Dependent Variable

Factors	Number of Cases	Unadjusted Mean	Unadjusted Coefficient	Adjusted Mean	Adjusted Coefficient
Harm Avoidance					
1	68	.191	.041	.159	.009
2	77	.195	.045	.175	.025
3	71	.127	-.023	.140	-.010
4	73	.137	-.013	.167	.016
5	54	.093	-.057	.107	-.043
Missing data	145	.145	-.005	.145	-.005
Eta^2 = .01					
Play					
1	64	.156	.006	.163	.013
2	84	.083	-.067	.098	-.052
3	87	.207	.057	.206	.056
4	59	.136	-.014	.019	-.031
5	49	.184	.034	.175	.025
Missing data	145	.145	-.005	.145	-.005
Eta^2 = .01					
Rebelliousness					
1	54	.167	.017	.183	.033
2	84	.095	-.054	.118	-.032
3	56	.107	-.042	.089	-.061
4	84	.179	.029	.190	.040
5	65	.216	.065	.176	.026
Missing data	145	.145	-.005	.149	-.005
Eta^2 = .01					

TABLE 7 (Continued)

MCA Results with the Existence or Nonexistence of an Unusual Shopping Pattern as Dependent Variable

Factors	Number of Cases	Unadjusted Mean	Unadjusted Coefficient	Adjusted Mean	Adjusted Coefficient
Perceived Consumer Effectiveness					
1	19	.264	.114	.257	.107
2	58	.052	-.098	.034	-.116
3	34	.000	-.150	.062	-.088
4	199	.126	-.024	.131	-.019
5	178	.225	.075	.214	.064
$Eta^2 = .04$					

APPENDIX

Description of High Scorer on Personality Scale

1. Aggression

   Enjoys combat and argument; is easily annoyed; sometimes willing to hurt people to get his way; may seek to get even with people whom he perceives as having harmed him

2. Anxiety

   Tense, restless, uneasy; tends to worry over inconsequential matters; more easily upset than is the average person; apprehensive about the future

3. Depression

   Is inclined to be downhearted and shows extreme despondency; considers himself to be inadequate; may be listless, remote, and preoccupied; looks at his future pessimistically.

4. Desirability

   Describes self in terms judged as desirable; consciously or unconsciously, accurately or inaccurately, presents favorable picture of self in responses to personality questionnaire statements

5. Dominance

   Attempts to control his environment and to influence or direct other people; expresses opinions forcefully; enjoys the role of leader and may assume it spontaneously.

6. Harm Avoidance

   Does not enjoy exciting activities, especially if danger is involved; avoids risk of bodily harm; seeks to maximize personal safety

7. Play

   Does many things "just for fun"; spends a good deal of time participating in games, sports, social activities, and other amusements; enjoys jokes and funny stories; maintain a light-hearted, easy-going attitude toward life.

8. Rebelliousness

Will frequently be uncooperative, disobedient, and resistant when faced with rules and regulations; reacts against discipline and criticism

9. Self-esteem

Self-assured, egotistical, self-sufficient; confident in dealing with others; not easily embarrassed or influenced by others; imperturbable in interpersonal situations

10. Sentience

Notices smells, sounds, sights, tastes, and the way things feel; remembers these sensations and believes that they are an important part of life; is sensitive to many forms of experience; may maintain an essentially hedonistic or aesthetic view of life

11. Understanding

Wants to understand many areas of knowledge; enjoys logical thought, synthesis of ideas, verifiable generalizations; values thought, particularly when it is directed at satisfying intellectual curiosity or problem solving

12. Tolerance

Broad-minded, undogmatic, open-minded, accepts people even though their beliefs and customs may differ from his own; open to new ideas; free from prejudice.

FOOTNOTES

[1]Patricia Lynch and Robert Chandler, National Environment Test (New York: Pocket Books, 1971), p. 109.

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[6]H. A. Murray, Explorations in Personality (Cambridge: Harvard University Press, 1938).

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[9]Douglas N. Jackson, Jackson Personality Inventory (London, Ontario: University of Western Ontario, 1970).

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