

TIME CONSTRAINTS AND CONSUMER DECISION-MAKING: AN EXAMINATION
OF THE CONDITIONAL EFFECT OF TIME PRESSURE

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THEORETICAL CONSIDERATIONS

Increasing time pressures in American society are changing the context in which consumer decision-making occurs. This study examined differences in the use of recommended dietary practices under high and low time pressure. The results suggest that individuals who are involved with nutrition and under high time pressure follow recommended practices to a similar degree as those under low time pressure. However, when individuals are less involved, those under high time pressure are less likely to follow recommended practices than those under low time pressure.

Two decades ago, Linder (1970) suggested that economic growth has resulted in a growing scarcity of time. Since that time, much has been written about the quickening pace of American life. The entry of women into the work place over the last several decades has produced stress, role conflict, and work overload for individuals, particularly women, who have heavy responsibility in both the work and family roles. Hochschild (1989) has labeled this phenomenon "the second shift," where time spent in child and home care equals a second job.

Given this major change in American lifestyles, it is surprising how little attention has been given by social scientists to the relationship of time scarcity and decision-making. Linder (1970) argued that as the scarcity of time increases, the quality of decisions is likely to decline. It would be expected that persons under time pressure would use a different decision-making strategy than those under less time pressure. In other words, time pressure may create a different context in which decisions are made. Yet little empirical work has been done to explore this and related hypotheses (Berk and Berk 1983, Bronner 1982, McGrath 1988).

The purpose of this paper is to explore the impact of time pressure on consumer decision-making and consumer behavior. Specifically, we investigate whether the relationships between consumer decisions and factors which affect these decisions are conditional on time pressure. Implications for decision-making theory and consumer education will also be discussed.

Empirical work regarding time pressure is scattered. Much of the work has focused on time allocation (e.g. Blaylock and Smallwood 1987, Robinson 1988). The relationship between time pressure and decision-making has generally been neglected (McGrath 1987).

A few studies have been conducted on how persons make choices under time pressure. The best known are the experimental studies by Wright (1974) which investigated how persons make decisions under time pressure. Wright found that individuals under time pressure simplify the task by being selective in the information they use. Those under time pressure also placed greater weight on negative information about alternatives.

Bronner (1982) has conceptualized decision-making under time pressure as behavior under stress. He argues that persons making decisions when time is scarce are often under stress. They recognize that their freedom of action is limited, and they may be uncertain what to do because they have limited time to gather information. Over time individuals learn to adapt to time pressure by developing compensatory mechanisms which leads to mastery of stress.

It is evident from these studies that individuals under time pressure are likely to develop a different strategy for solving problems and making choices than those who have more time. The empirical work that has been conducted has provided only a sketch of the compensatory mechanisms individuals use in adapting to time pressure. At the very least, individuals under time pressure are likely to simplify tasks by setting priorities, being selective concerning the information they use, and reducing alternatives.

Social psychological models of behavior and decision-making posit a set of relationships between perceptions (e.g. attitudes, beliefs), cognitions (e.g. knowledge, information) and behavior. If individuals under time pressure do indeed use different strategies to make decisions and choices, the basic relationships of these social psychological models are likely to differ by the degree of time pressure individuals experience. We propose that the relationships between perceptions, cognitions and behavior will be stronger when individuals are under time pressure. Individuals with limited time are likely to simplify their decision-making tasks by setting priorities, giving primary attention to those activities in which they are most interested or involved. Given the pressure to simplify, reduce

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stress, and therefore adapt to time constraints, they are more likely to engage in those activities they care about as well as more likely not to do those activities to which they are not fully committed. This formulation suggests a conditional model, where the strength of the basic relationships are dependent on time pressure. This approach is substantially different than most of the previous studies in which time pressure was considered a direct effect on decision-making.

To date we were able to locate only one study which considered time pressure as a conditional variable. Based upon a different set of hypotheses, Iyer (1989) found that shoppers with high knowledge who were under time pressure were the most likely to buy only those items they planned to buy at the grocery store, and to minimize impulse purchases. Our study extends this area of inquiry by investigating whether time pressure alters the relationship of both cognitions and perceptions with consumer behavior.

THE STUDY SETTING

To determine if time pressure produces different contexts for decision-making, a set of relationships from an earlier study of food behavior (Houts 1986, Houts and Warland 1989) were re-examined. Since meal preparation is an activity which is often subject to time pressure, particularly in households where the woman is working, we considered this activity one that would provide a good setting to test our hypothesis. The food study investigated factors that were related to recommended dietary practices, i.e., the extent to which persons make a conscious effort to eat specific foods which are considered beneficial to health, and avoid foods which are thought to be harmful to one's health. The recommended dietary practices studied are similar to the protective health behaviors labeled "eating habits" by Hayes and Ross (1987) and the health-promoting behaviors studied by Harris (1987).

The social psychological factors related to the use of recommended dietary practices included both cognitive and perceptual factors. Following Assael (1987) and Krugman (1965), those involved with making nutritious food choices would be concerned about their health, concerned about what they ate, perceive risks in not eating the right foods, consider themselves well informed about nutrition, and seek information about nutrition.

Health and nutrition concerns, self-assessed knowledge about nutrition, and information seeking were found to be positively related to the recommended dietary practices (Houts 1986). Those who were engaged in protective food behavior were concerned about their health and were willing to seek out information about how to eat properly. Our hypothesis is that these relationships will be much stronger for individuals who are time pressed when they prepare meals than those who report they are less time pressed.

PROCEDURES

The data were obtained from a national survey conducted by telephone with 458 adults who were primarily responsible for the preparation of food in their households. The data were collected in the summer of 1985. As would be expected, women outnumbered men 414 to 44 indicating, as many studies have shown, that women continue to assume the role of household food preparer. The response rate was 48 percent. Other details of the survey can be found in Houts (1986).

The measure for recommended dietary practices was a scale derived from seven questions on the selection and avoidance of food items. The questions were very similar in format to those in the widely-cited Prevention Index (Harris 1987). The seven items represent foods or specific food constituents (e.g. fiber) that are frequently discussed in the media as important for sound nutrition and health. The respondents were asked how hard they tried (try very hard, try somewhat, don't worry about it) to avoid salt, sugar, cholesterol and calories, and to eat vegetables, fruit, and fiber. The range of the index was from zero to 14 with a mean value of 9.93. The nine items loaded on one factor and the Cronbach's alpha was .76.

Time pressure was measured by an index constructed from four items. These interviewed were asked how often (frequently, sometimes, seldom or never) they fixed quick meals because they were rushed, fixed easy-to-prepare meals to save bother, bought carry-out foods, and felt rushed for time when fixing meals. The Cronbach's alpha was .67.

Health and nutritional concerns were measured by two questions. Respondents were asked if they were more concerned about what they ate than they used to be. The responses were coded: not really, maybe, and definitely. They were also asked how often (frequently, sometimes, seldom or never) they checked their menus to see if they were nutritionally balanced.

Self-assessed nutritional knowledge and information seeking were measured by two items. Those interviewed were asked how much (almost nothing, not too much, some, quite a bit, a lot) they felt they knew about nutrition. Self-assessed nutritional knowledge is the respondent's belief about what he or she knows rather than an actual measure of nutritional knowledge. A study by Feick (1981) does indicate, however, that self-assessed knowledge is related ($r=.43$) to measured knowledge. Information seeking was measured by asking how often (frequently, sometimes, seldom or never) they check nutrition and ingredient labels to see what's in a food product.

The two concern items, self-assessed knowledge, and the information seeking measure were also combined into a four item nutritional involvement index. Since the metric of these items differs, the items were standardized before the index was constructed. The Cronbach's alpha for the index was .63.

Age and education were also included since they have been shown to be related to nutrition behavior (Calnan 1985, Hayes and Ross 1987, Herrmann, Warland, and Feick 1984, Seeman and Seeman 1983). Those interviewed were asked what was their age on their last birthday and what was the highest grade of school they completed.

To test the conditional relationship, the sample was divided into a high time pressure group (N=99) and a lower time pressure group (N=349).²

The time pressure index ranged from zero to eight. Those with scores between six and eight were placed in the high time pressure group, and those with scores of less than six were placed in the lower time pressure group. Scores between six and eight represent food preparers who responded "frequently" to two, three, or four of the four items on the time pressure index. This division also represents a natural break point where the difference between the two groups was greatest. For more details concerning this procedure, see Warland and Sample (1973).

RESULTS

If the two groups differ with respect to the relationships between recommended dietary practices and the various independent variables, there will be evidence that time pressure produces different contexts for decision-making. To assess the relationships of the four variables with the recommended dietary practices, each was regressed on dietary practices for both the two time pressure groups. The results are reported in Table 1. All eight regression coefficients are statistically significant. However, the degree of association between these variables and recommended dietary practices is much stronger for the high time pressure group. The R² statistic is two to four times higher for the high time pressure group than the lower time pressure group. Furthermore the z statistics for the differences of the regression coefficients for the two groups are statistically significant for all variables. This also indicates that the effect of the four independent variables on recommended dietary practices is stronger under high time pressure than under lower time pressure.

When the four belief, concern, and information seeking measures were combined into a single nutritional involvement index, the difference between the two time pressure groups remained (Table 2). The index explained 18 percent of the variance for the lower time pressure group and 46 percent of the variance for the high time pressure food preparers. These differences also

²There are other ways to statistically establish a conditional relationship. We have also analyzed these data using a nonlinear, non-additive regression model suggested by Fisher (1988) which yielded similar results to those reported here. We have selected the group difference approach to facilitate presentation.

remain when age and education are added to the equation. It may be noted that age has a significant relationship to recommended dietary practices for the lower time pressure group. The coefficient is highly significant and R² increases from .18 to .26. Age is not significant for the high time pressure respondents. Education is not statistically significant for either time pressure group.

TABLE 1. Estimated Regression Coefficients and Tests of Coefficient Difference for Recommended Dietary Practices, by Group.

Variable	High Time Pressure		Lower Time Pressure		Z Statistics
	β	R ²	β	R ²	
Self Assessed Nutritional Knowledge	2.07*	.27	.86*	.06	3.10*
Constant	1.81		7.48		
Health Concern	2.46*	.23	.84*	.06	3.31
Constant	2.15		8.32		
Nutritional Concern	1.94*	.21	.87*	.07	2.56
Constant	5.07		8.61		
Label Reading	2.33*	.29	1.29*	.14	2.50
Constant	3.88		7.56		

*Significant at p<.001

The Z statistics are for group comparisons of regression coefficients based on $z = \frac{\beta_H - \beta_L}{S(\beta_H - \beta_L)}$, where subscripts H and L refer to High and Lower Time Pressure Coefficients, respectively. Values greater than 2.00 can be considered significant.

TABLE 2. Regression of Recommended Dietary Practices on the Nutritional Involvement Index, by Group.

Variable	High Time Pressure		Lower Time Pressure		Z Statistics
	β	R ²	β	R ²	
Model 1					
Nutritional Involvement Index	.87*	.46	.46*	.18	3.76*
Constant	8.82		10.30		
Model 2					
Nutritional involvement Index	.86*	.46	.51*	.26	3.18
Age	.01		7.05*		
Education	-.02		-.02		
Constant	8.53		8.20		

*Significant at p<.001

*Values greater than 2.00 can be considered significant.

An illustration of the nature of the different relationships between the two time pressure groups is presented in Table 3. The recommended dietary practices index and the nutritional involvement index were divided into three equal groups (higher, midrange, and lower). This procedure produced a three-by-three table for each time pressure group. The results suggest that if individuals are involved with nutrition, the degree to which both the high and lower time pressure groups follow the recommended dietary practices is quite similar. However, when individuals are less involved and under high time pressure, they are much less likely to follow recommended dietary practices than their lower time pressure counterparts.

TABLE 3. Distribution of Recommended Dietary Practice Scores by Level of Involvement for High and Lower Time Pressure Groups (percent).

	Lower Involvement (1) (Percent)	Midrange Involvement (2) (Percent)	Higher Involvement (3) (Percent)
Lower Time Pressure			
Lower Dietary Practice Scores	40	30	7
Midrange Dietary Practice Scores	37	34	34
Higher Dietary Practice Scores	23	36	59
High Time Pressure			
Lower Dietary Practice Scores	80	35	7
Midrange Dietary Practice Scores	18	42	41
Higher Dietary Practice Scores	2	23	52

Among the highest involvement cells (see column 3), the distribution for recommended dietary practices is very similar regardless of time pressure (7, 34, and 59 percent versus 7, 41, and 52 percent). However, the distributions are quite different for the "lower involvement" cells of the table (see column 1). For the high time pressure group, 80 percent of the lower involved respondents were also in the lowest recommended dietary practices cell. Conversely only 40 percent of the less involved lower time pressure group reported the lowest recommended dietary practices scores. Apparently the simplification process in food choice-making is most pronounced for the less involved food preparers under high time pressure. They are likely to do very little about recommended nutrition and health behavior.

DISCUSSION

The analysis of data clearly supports the major proposition of this paper: the relationship between health and nutrition concerns, beliefs, information seeking, and recommended dietary practices are substantially stronger for those under high time pressure than for those under lower time pressure. Although the evidence is indirect, it appears that those under time pressure do simplify their decision-making by setting priorities and behaving accordingly. If they are committed to health and nutrition, they are just as likely to follow recommended dietary practices as those under less pressure. However if they are not fully committed to nutrition, they are far less likely to eat as nutritionists and health professionals recommend.

We suspect that this is one of many possible relationships that are likely to exist between time pressure, decision-making, and behavior. Time pressure has been found to be related both positively and negatively to performance (Freedman and Edwards 1988), to be related negatively to information search (Bronner 1982) and to be related negatively to enjoyment of the task (Robinson 1988). Most likely there are a number of components to the simplifying strategies individuals use to adapt to time pressure. Research focused on this process will help define these strategies. In any case, models of behavior and decision-making that have been used in the past may need to be modified to take into account the effects of time pressure on decision-making.

The most important implication for both consumer education professionals and nutrition and health professionals is that it may be very difficult to change the behavior of those persons who are time pressed. Food preparers who are under time pressure and who are not fully involved in nutrition do not follow recommended dietary practices. It is likely that it will be particularly difficult to change the behavior of these time pressed individuals.

The simplification process appears to produce more extreme behavior, and given the fact that those under time pressure are also likely to seek out less information, are less willing to do things they don't enjoy, and are less attentive to information, this group creates major challenges for consumer education and health professionals. New approaches will need to be developed. One possible strategy may be to emphasize risks and negative consequences, since previous research has demonstrated those under time pressure try to reduce risk and are more attentive to negative information (Wright 1974).

It seems likely that the number of persons who will experience higher levels of time pressure will increase. Demographic projections suggest that those households with persons living alone, with both husband and wife working, and with single parents are most likely to increase in the next decade. These are the household types in which the incidence of time pressure is high. As a larger proportion of the population becomes time pressed, current models of decision-making and consumer behavior become less useful. New models of decision-making and consumer behavior will need to be developed, and new strategies to get information effectively to high time pressed persons will be required. There is much work to do.

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