

CONSUMER ATTITUDES TOWARDS MEAT PRODUCTS WITH LOWER SODIUM CONTENT

L. Guerrero, M.D. Guàrdia, J. Gelabert and J. Arnau

Institut de Recerca i Tecnologia Agroalimentàries. Unitat de Tecnologia de Processos.
Centre de Tecnologia de la Carn. Granja Camps i Armet. E-17121 Monells. Girona. Spain.

Key words: Consumer attitudes, meat products, low sodium content.

INTRODUCTION

Hypertension affects about 20% of the population in developed countries (Wirth, 1989), being one of the most important risk factor in heart diseases and cerebral hemorrhages (Kerr and Nichman, 1986). There are some studies where a link between sodium intake and hypertension have been made (Tobian, 1979) suggesting that sodium consumption should be reduced. In general, consumers seem to be concerned about the nocive effect that a high level of sodium in their diet could have (Lynch, 1987). In Spain meat products represent an important part of the total sodium intake (20-30%) as a result of their large consumption (Anonymous, 1995). The reduction of the amount of sodium in these products is possible from a technological and sensorial point of view (Gou *et al.*, 1996). However, a little information exist about consumer ideas and feelings towards low salt meat products. The aim of this study is to examine consumer attitudes towards meat products with a lower sodium content using the Theory of Planned Behaviour of Ajzen (Ajzen, 1991).

METHODOLOGY

A 45 items questionnaire was elaborated following the Theory of Planned Behaviour proposed by Ajzen (Ajzen, 1991). The questionnaire was made up of the following components: 2 items about behavioural intention, 5 questions on attitude, 1 question about subjective norm, 4 items on normative beliefs and their corresponding questions on motivation to comply with them, 3 items about perceived control, and finally 13 beliefs and their evaluation. Salient behavioural beliefs were obtained from a previous questionnaire filled in by 102 consumers from different socio-demographic characteristics. In this questionnaire consumers should list the advantages and disadvantages of consuming meat products with low sodium content. Normative beliefs were obtained from a previous experience (Guerrero *et al.*, 1998).

The final questionnaire was filled in at home by 392 consumers from the internal panel of IRTA consumers. In order to analyze the data obtained all the items were scored from -3 to +3 with +3 representing a positive attitude towards low salt meat products. The only exception were the motivational items which were scored 1 to 7 as suggested by Ajzen and Fishbein (1980).

Data were analyzed using the ANOVA, CORR, REG, and FACTOR procedures from SAS Statistical package (SAS, 1987).

RESULTS AND DISCUSSION

The analysis of variance shows a clear consumer segmentation in four components of the model, the sex of the consumers being the most important aspect. The importance of consumer's sex on attitude has also pointed out in several studies (Shepherd 1988a, Dennison and Sheperd, 1995). Table 1 shows the mean values for those components where a significant socio-demographic segmentation was detected. In general, women had a more positive attitude and stronger ideas about low salt meat products than men. They also showed a higher perceived control on the behaviour, perhaps due to the fact that in Spain food shopping is still mainly done by women.

The Cronbach Alpha Coefficient (Cronbach, 1951) ranged from 0.89 for the behavioural intention to 0.56 for the beliefs x evaluation items. In general, these values show a good internal consistency. The lowest value obtained for the beliefs x evaluation do not represent a serious problem as stated by Sheperd (1988b) because people may hold beliefs which are not totally consistent. Factor analysis on the beliefs x evaluation confirm the non-unitary structure of this component of the model. Seven important different factors were detected, the health and the taste related ones being those which explain the highest percentage of total variation.

The final model (Figure 1) showed a good predictor capacity (60%). The inclusion in the model of the indirect measures for the attitude and for the subjective norm (Mesters and Oostveen, 1994) improved slightly the explanation of the behavioural intention (63%). This fact could be due to the biased measure of attitude (Shepherd, 1988a) since it was evaluated using terms related with health and taste (beneficial, good, etc.). The most important aspect in predicting consumers behavioural intention was the attitude. Subjective norm also had significant effect in intention which point out the importance of the other people in the consumers behaviour. The significant improvement made by the perceived control shows that the behavioural intention was not totally under a person's control (Sparks and Shepherd, 1992). In general the Theory of Planned Behaviour was efficient to predict the behavioural intention, although it should bear in mind that these results must be confirmed regarding real consumer's behaviour.

ACKNOWLEDGEMENTS

This study received financial support from the INIA project N° SC93-126 and AIR program project AIR-CAT PL 942481.

REFERENCES

- Ajzen, I., 1991. The theory of Planned Behaviour. *Organizational Behavior and Human Decision Processes* 50, 179-211.
- Ajzen, I. and Fishbein, M. 1980. *Understanding attitudes and predicting social behavior*. Prentice-Hall, Englewood Cliffs, New Jersey.
- Anonymous, 1995. La producción, industria y comercio de la carne en España en 1994. I. Producción. *Cárnica 2000. Anuario Cárnico*, 33-46.
- Cronbach, L.J., 1951. Coefficient Alpha and the internal structure of tests. *Psychometrika*, 16 (3), 297-334.
- Dennison, C.M. and Shepherd, R. 1995. Adolescent food choice: an application of the Theory of Planned Behaviour. *Journal of Human Nutrition and Dietetics* 8, 9-23.



- Gou, P., Guerrero, L., Gelabert, J. and Arnau, J. 1996. Potassium chloride, potassium lactate and glycine as sodium chloride substitutes in fermented sausages and dry cured loin. *Meat Science*, 42 (1), 37-48.

- Guerrero, L., Gelabert, J., Guàrdia, M.D., Gou, P., Arnau, J., Sheperd, R. and Sparks, P. 1998. Actitud de los consumidores frente a los productos cárnicos con un menor contenido en sodio. *Food Science and Technology International* (in press).

- Kerr, G.R. and Nichman, M.Z. 1986. Salt and Hypertension. *Public Health. Rev.* 14, 24-104.

- Lynch, N.M. 1987. In search of the salty taste. *Food Technology*, 41 (11), 82-86.

- Mesters, I. and Oostveen, T. 1994. Why do adolescents eat low nutrient snacks between meals? An analysis of behavioral determinants with the Fishbein and Ajzen model. *Nutrition and Health* 10, 33-47.

- SAS, 1987. SAS User's Guide. SAS Institute Inc., Cary, NC.

- Sheperd, R. 1988a. Belief structure in relation to low-fat milk consumption. *Journal of Human Nutrition and Dietetics* 1, 421-428.

- Sheperd, R. 1988b. Consumer attitudes and food acceptance. In *Food Acceptability*. Ed. D.M.H. Thomson Applied Science, London, U.K., 253-266.

- Sparks, P. and Shepherd, R. 1992. Self-identity and the theory of Planned Behaviour: Assessing the role of identification with "Green Consumerism". *Social Psychology Quarterly*, 55 (4), 388-399.

- Tobian, L. 1979. The relationship of salt to hypertension. *American Journal Clin. Nutrition* 32, 2739-2748.

- Wirth, F. 1989. Reducing the common salt content of meat products: possible methods and their limitations. *Fleischwirtsch.* 69 (4), 589-593.

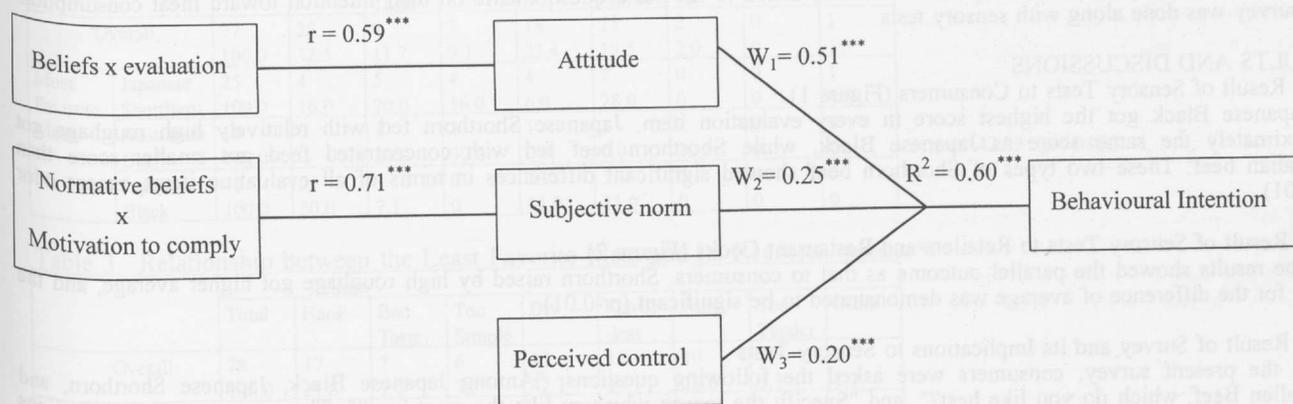
Table 1. Mean values for different components of the model regarding the effect of the socio-demographic variables studied.

| Variable | Socio-demographic variable ^y | | | | | | | | | | | | | |
|----------------------|---|-------|-------------|-------|-----------|-------|----------|-------|------------------|------|------------------|------|------------------|------|
| | Sex | | | | Smoking | | | | Education | | | | | |
| | Men (197) | | Women (195) | | Yes (113) | | No (279) | | Basic (87) | | Further (104) | | High (201) | |
| | X | SD | X | SD | X | SD | X | SD | X | SD | X | SD | X | SD |
| Attitude | 2.7 | 4.90 | 4.1 | 4.75 | | | | | | | | | | |
| Perceived control | 2.4 | 3.34 | 3.0 | 3.15 | | | | | | | | | | |
| Beliefs x evaluation | 15.8 | 15.19 | 19.3 | 15.31 | 14.8 | 15.14 | 18.5 | 15.31 | | | | | | |
| Subjective norm | | | | | | | | | 0.6 ^a | 1.38 | 0.2 ^b | 1.43 | 0.1 ^b | 1.50 |

^y: only those components where a significant effect ($p < 0.05$) was detected are shown.

a-b: mean values with different letters are significantly different ($p < 0.05$).

Figure 1. Final model obtained using the Theory of Planned Behaviour



*** : $p < 0.001$