

## **INTERACTION EFFECTS BETWEEN INFORMATION AND TIME IN THE ADJUSTMENT OF ONCOLOGICAL PATIENTS**

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### **INTRODUCTION**

The problem as to providing or retaining information from patients concerning diagnosis and/or treatment has persisted throughout the ages, since the time of the Greeks (Reiser, 1980). However, at no time in history has this subject raised as much interest or appeared so persistently in the literature as in the second half of the present century (Vanderpool and Weiss, 1987).

This growing interest is due to two main reasons -social and medical. In the social context, the last three decades have seen a change in the traditional models of physician-patient relationships. Thus, the "paternalist model" (Parsons, 1951), postulating an asymmetry of power between the physician and patient and unilaterality in medical decisions has given way to other models proposing a greater role on the part of the patient in their own care, including the right to take decisions and demand responsibilities. As examples, we may mention the movements of

"consumerism in the area of health" (Reeder, 1972), "self-care" (Green et al., 1977), or "informed consent" (Annas, 1975). Within the context of these changing views, information provided has been considered a mechanism by which patients are able to exert a greater control and power of decision.

A further reason explaining the growing interest in information provided to cancer patients relates to the medical advances experienced in the diagnosis and treatment of these diseases, thus offering the possibility of longer survival rates in such patients. Still, such improved survival is achieved through painful and/or disgreable treatments. In this sense, the concept of "quality of life" has come to place more emphasis on improving the quality of life among survivors than on exclusively prolonging survival. Thus, the offering of information is taken to constitute a means to improve the quality of life.

A great many studies have attempted to determine the consequences of the information given to cancer patients, concerning aspects such as diagnosis, treatment, prognosis, and so on. In particular, the emotional aspects associated with the revealing of information have been investigated, together with the impact of such data on social and family relations. Unfortunately, few clear conclusions have been established. A number of studies report negative emotional responses to the information provided (apprehension, anger or anxiety), which interfere with the adjustment capacity of the patient (Peck, 1972; Patel et al., 1980; Simes et al., 1986), whereas others report positive effects such as reduced anxiety (Denney et al., 1975; Cassem and Stewart, 1975), wick favors improved adjustment (Gerle et al., 1969; Henriques et al, 1980; Cassileth et al., 1980; Mischel et al., 1984).

These contradictory results suggest that information in itself is neither positive nor negative (Ibáñez, 1988); rather, its impact depends on a number of factors including the way in wich information is given, and the way in which its effects are evaluated (Durá and Ibáñez, 1987; Durá, 1990).

In the present study we center on one of these factors -the short- and long-term effects of the information given. In other words, we feel that information may exert short-term effects that are different to the corresponding long-term effects - positive or negative. We have thus attempted to establish any interactions between the controlled supplying of information on cancer diagnosis and treatment, and the time gone by.

## **SAMPLING AND PROCEDURE**

The study sample consisted of 71 women first diagnosed of breast cancer. All were operated on and subsequently subjected to chemo- and/or radiotherapy. Forty-six of these patients belonged to Group A, which received written and detailed information on surgical procedure two or three days before the operation,

and on diagnosis and adjuvant therapy after surgery, but before commencing the complementary treatment. The remaining 25 patients corresponded to Group B, which received no further information than that usually of the systematic, comprehensive and sequential supplying of information versus data offered in a non-controlled manner, depending on the individual decision of each physician.

In addition, Group A was divided into two subgroups, according to whom the information was offered: to both the patient and her family (Subgroup A1), or to the patient but not her family (Subgroup A2). There were 24 patients in Subgroup A1, and 22 in Subgroup A2. These subgroups were established to verify the importance of the family in the process of patient information and adjustment.

Final distribution of the 71 patients was thus as follows:

- Group A1: systematic, comprehensive and sequential information given to both patient and family
- Group A2: systematic, comprehensive and sequential information given to the patient but not the family
- Group B: non-controlled information given orally, and usually by the physician.

The social and clinical characteristics of the patients are given in Table 1.

All patients were assessed by three instruments:

1. A **Global Scale of Adjustment** developed specifically for our study and giving a single total score on physical and psychological symptoms.

2. A **Psychosocial Adjustment to Illness Scale - Self Report (PAIS-SR)** (Derogatis, 1983), assessing adjustment to illness according to 7 areas:

- Health Care Orientation
- Laboral Environment
- Domestic Environment
- Sexual Relationships
- Extended Familiar Relationships
- Social Environment
- Psychological Distress

3. A **Questionnaire of Emotional Adjustment to Cancer (CAEC)** (Andreu, 1987), assessing 6 different emotional reactions:

- Dependency
- Instability
- Depression
- Irritability
- Wishful Thinking
- Unstable-Depressive Mood

On all these subscales, the score increases with the degree of disadjustment; in other words, the higher the score the greater the psychosocial alteration.

TABLE 1  
CHARACTERISTICS OF SAMPLE

	GROUP A1		GROUP A2		GROUP B	
	N	%	N	%	N	%
<b>AGE</b>						
25-34	1	4.17	0	0.00	2	8.00
35-44	5	20.83	3	13.64	2	8.00
45-54	7	29.17	5	22.73	3	12.00
55-64	6	25.00	8	36.36	10	40.00
65-74	4	16.66	6	27.27	7	28.00
75-84	1	4.17	0	0.00	1	4.00
Average	54.83		56.86		58.12	
<b>CIVIL STATE</b>						
Married	19	79.17	10	44.45	19	76.00
Single	1	4.17	1	4.55	1	4.00
Vidow	4	16.66	8	36.36	5	20.00
Separate	0	0.00	3	13.64	0	0.00
<b>STAGE</b>						
I	5	20.83	6	27.27	3	12.00
II	13	56.17	12	54.55	12	48.00
III	5	20.83	4	18.18	6	24.00
IV	0	0.00	0	0.00	1	4.00
Unknow	1	4.17	0	0.00	3	12.00
<b>SURGERY</b>						
Radical	13	54.16	11	50.00	15	60.00
Conservative	11	45.83	11	50.00	5	20.00
No surgery	0	0.00	0	0.00	5	20.00
<b>TREATMENT</b>						
Chemotherapy	2	8.33	3	13.64	14	56.00
Radiotherapy	11	45.83	8	36.36	0	0.00
Hormonotherapy	1	4.17	0	0.00	2	8.00
Chemo + radio	7	29.17	9	40.91	6	24.00
Hormono + radio	3	12.50	2	9.09	3	12.00
N	24		22		25	

(NOTE: N = number of subjects; % = proportion of subjects)

The three instruments were applied to Groups A1 and A2 in three ways:

- Before surgery and before receiving any information concerning personal situation.
- One month after surgery, and thus one month after receiving information on surgical procedure.
- Five months after commencing adjuvant treatment, and so five months after receiving information on diagnosis and adjuvant therapy.

The patients in Group B were assessed one month after surgery, and five months after commencing adjuvant therapy.

The assessment procedure is detailed in Table 2.

## **ANALYSES CARRIED OUT**

Two multiple variance analyses were carried out.

The first analysis was applied between Group A (informed patients) and Group B (uninformed patients), according to the scores obtained at two different times: one and 6 months after surgery (Design 2x2).

The second analysis was applied between the two subgroups of Group A (informed family-patient and information for patient only), according to the scores obtained at the three different times of evaluation: a few days after surgery, one month after, and 6 months postoperatively (Design 2x3).

## **RESULTS**

In the comparison of the two subgroups of Group A, no interaction effects were observed for any of the variables considered, at the three times of evaluation.

On the other hand, the comparison of Groups A and B showed an interaction between information provided and the time gone by, for the following variables:

- **Laboral Adjustment (PAIS-SR)** (Table 3)

For this variable, the significance attained by the interaction effect was one percent. Application of the Tukey Test showed the following aspects:

- Group A (informed patients) presented an improvement in this variable with time; the mean value obtained on month after surgery was 11.22, whereas after 6 months it was 9.06. This difference is significant to five percent.

- Group B (uninformed patients) presented a worsening in this variable; the means obtained were 9.32 and 10.40 at the two times, respectively -although statistical significance was not reached.

TABLE 2  
EXPERIMENTAL DESIGN PROCEDURE

	GROUP A1	GROUP A2	GROUP B
A) BEFORE SURGERY	1) ASSESSMENT OF PATIENTS 2) INFORMATION ON SURGERY GIVEN TO BOTH PATIENT AND FAMILY	1) ASSESSMENT OF PATIENTS 2) INFORMATION ON SURGERY GIVEN ONLY TO PATIENT	
B) ONE MONTH AFTER SURGERY BUT BE- FORE STARTING ADJUVANT THERAPY	1) ASSESSMENT OF PATIENTS 2) INFORMATION ON DIAGNO- SIS AND TREATMENT GI- VEN TO BOTH PATIENT AND FAMILY	1) ASSESSMENT OF PATIENTS 2) INFORMATION ON DIAGNO- SIS AND TREATMENT GI- VEN ONLY TO PATIENT	1) ASSESSMENT OF PATIENTS
C) 5 MONTHS AFTER STARTING ADJU- VANT THERAPY	1) ASSESSMENT OF PATIENTS	1) ASSESSMENT OF PATIENTS	1) ASSESSMENT OF PATIENTS

TABLE 3  
LABORAL ADJUSTMENT

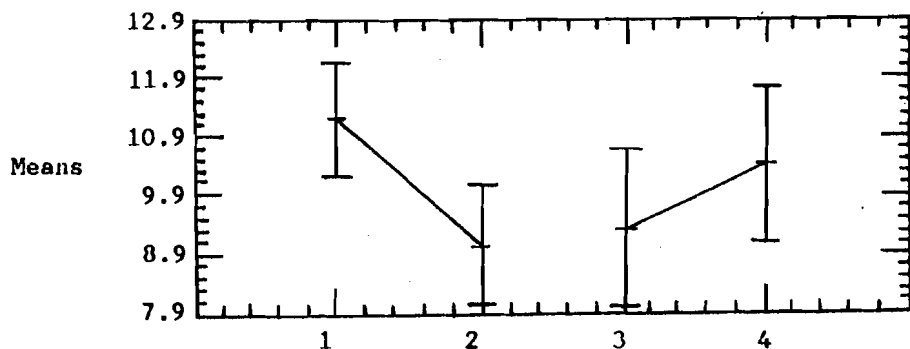
## ANALYSIS OF VARIANCE

Source of variation	Sum of squares	d.f.	Mean square	F	p
Main Effects	39.070	2	19.535	1.685	.1893
- Information	2.563	1	2.563	.221	.6440
- Moment of evaluation	36.507	1	36.507	3.149	.0782
Interactions	84.605	1	84.605	7.297	.0078

## MEANS OF GROUPS

	GROUP A	GROUP B
1 MONTH AFTER SURGERY	11.22	9.32
6 MONTHS AFTER SURGERY	9.06	10.49

## TUKEY TEST



- 1 = Group A. 1 month after surgery  
 2 = Group A. 6 months after surgery  
 3 = Group B. 1 month after surgery  
 4 = Group B. 6 months after surgery

**TABLE 4**  
**DOMESTIC ADJUSTMENT**

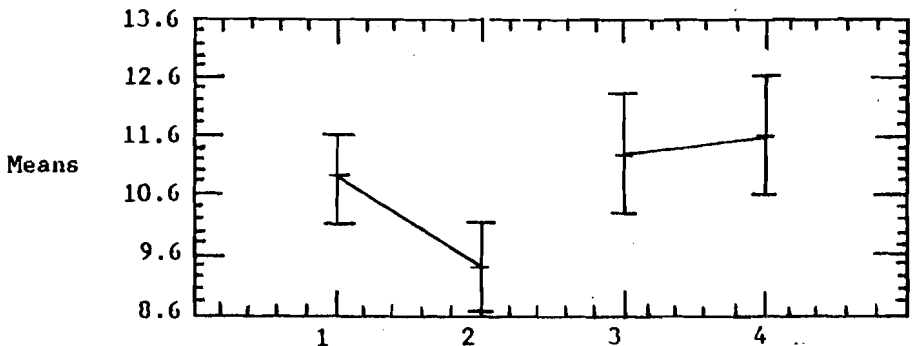
**ANALYSIS OF VARIANCE**

Source of variation	Sum of squares	d.f.	Mean square	F	p
Main Effects	84.258	2	42.129	6.155	.0028
- Information	58.054	1	58.054	8.481	.0042
- Moment of evaluation	26.204	1	26.204	3.828	.0524
Interactions	26.825	1	26.825	3.919	.0497

**MEANS OF GROUPS**

	GROUP A	GROUP B
1 MONTH AFTER SURGERY	10.89	11.32
6 MONTHS AFTER SURGERY	9.39	11.64

**TUKEY TEST**



- 1 = Group A. 1 month after surgery  
 2 = Group A. 6 months after surgery  
 3 = Group B. 1 month after surgery  
 4 = Group B. 6 months after surgery



**TABLE 5**  
**S E X U A L      A D J U S T M E N T**

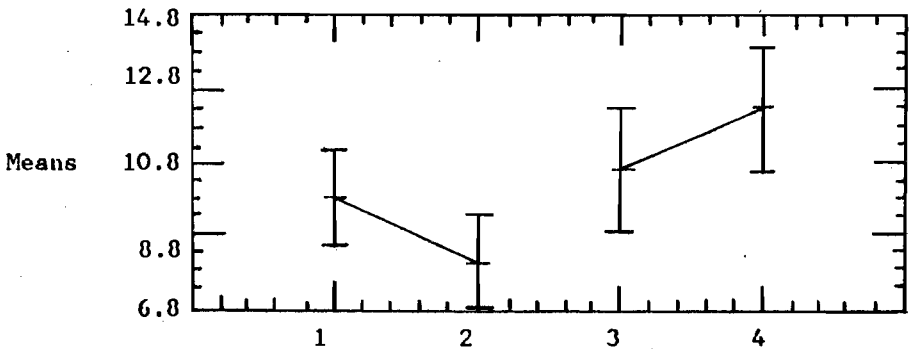
**ANALYSIS OF VARIANCE**

Source of variation	Sum of squares	d.f.	Mean square	F	p
Main Effects	198.996	2	99.498	5.279	.0062
- Information	188.285	1	188.285	9.989	.0019
- Moment of evaluation	10.711	1	10.711	.568	.4603
Interactions	86.125	1	89.125	4.728	.0314

**MEANS OF GROUPS**

	GROUP A	GROUP B
1 MONTH AFTER SURGERY	9.85	10.60
6 MONTHS AFTER SURGERY	8.13	12.20

**TUKEY TEST**



- 1 = Group A. 1 month after surgery
- 2 = Group A. 6 months after surgery
- 3 = Group B. 1 month after surgery
- 4 = Group B. 6 months after surgery

**- Domestic Adjustment (PAIS-SR) (Table 4)**

The interaction effect in this case reached a significance to five percent.

As in the previous case, the Tukey Test showed an improvement in time among the Group A patients. The means obtained for this group were 10.89 and 9.39, respectively -the difference being significant to five percent.

In turn, Group B showed no significant differences at all in time: the respective means at both times were 11.32 and 11.64.

**- Sexual Adjustment (PAIRS-SR) (Table 5)**

A five percent significance was reached by the interaction effect in this case.

Again, application of the Tukey Test showed an improvement in time in Group A, with values of 9.85 and 8.13, respectively, and a worsening in Group B -with means of 10.60 and 12.20, respectively.

Moreover, it should be pointed out that in addition to these interaction effects, both analyses showed principal effects with different variables. We will not comment on these direct effects here, as they are beyond the scope of this paper, although they have been dealt with in more detail elsewhere (Durá, 1989; Durá and Ibañez, in print).

## CONCLUSIONS

The results obtained show that the interaction between the information provided and the time gone by only reaches statistical significance when comparing the informed (Group A) and uninformed groups (Group B), for the concrete variables of Laboral, Domestic and Sexual Adjustment. In these three cases, the pattern observed is similar, with an improvement in time among the informed patients, and a continuity or, even, a worsening among those not informed.

In this sense, we restate our opening hypothesis that the information provided interacts with the time gone by, in influencing the adjustment of breast cancer patients. This interaction shows that the information given exerts a positive effect on the psychological adjustment of these patients, depending on the moment in which the data are supplied.

Studies by other authors and ourselves had already shown that the information provided to cancer patients directly influences the corresponding emotional reactions and psychosocial adjustment of these patients (Durá, 1989; Henriques et al., 1980) Cassileth et al., 1980; for a review, see Durá, 1986, 1989).

Although it is being noted that the consequences of the information supplied depend on factors relating to the way in which it is given (who gives it, when, how, what type of information, and so on) and to when the effects are evaluated (adjustment area affected, the time of evaluation, etc.) (Durá, 1990), they are

nevertheless evident in their direct effect on the psychological adjustment of oncological patients.

In turn, many studies have shown a clear decrease in psychopathological symptoms a few months after commencing treatment in cancer patients (Tres Sánchez et al., 1987; Lederberg et al., 1989; Morris et al., 1979).

Finally, our own results point to the following:

- Information provided concerning the disease itself favors Laboral, Domestic and Sexual Adjustment as time since the commencing of treatment goes by.

- The Laboral, Domestic and Sexual Adjustment of breast cancer patients only improves with time if these patients have been informed of their diagnosis and treatment; when this information is not supplied, adjustment stabilizes or even worsens with time.

## REFERENCES

- ANDREU, Y. (1987).- Creación de un cuestionario para las pacientes con cáncer de mama. Doctoral Dissertation, University of Valencia.
- ANNAS, G.J. (1975).- *The rights of hospital patients: American Civil Liberties Union Handbook*. New York, Avon Books.
- CASSEM, N.H. and STEWART, R.S. (1975).- Management and care of the dying patient. *International Journal of Psychiatry in Medicine*, 1, 295-305.
- CASSILETH, B.R., ZUPKIS, R.V., SUTTON-SMITH, K. and MARCH, V. (1980).- Information and participation preferences among cancer patients. *Annals of Internal Medicine*, 92, 832-836.
- DENNEY, M.D., WILLIAMSON, D. and PENN, R. (1975).- Informed consent. Emotional responses of patients. *Postgraduate Medicine Journal*, 60, 205-209.
- DEROGATIS, L.R. (1983).- PAIS and PAIS-SR. Administration, Scoring and Procedures. Baltimore, Clinical Psychometric Research.
- DURA, E. (1986).- Un modelo de información para pacientes con cáncer de mama. Graduate Dissertation, Universidad of Valencia.
- DURA, E. (1989).- La información como estrategia de adaptación en pacientes con cáncer de mama. Doctoral Dissertation, Universidad of Valencia.
- DURA, E. (1990).- El dilema de informar al paciente de cáncer. Valencia Nau Libres.
- DURA, E. and IBAÑEZ, E. (1987).- Algunas consideraciones y un modelo acerca del tema de la información en Psicología Oncológica. *Boletín de Psicología*, 16, 7-33.

- DURA, E. and IBANÉZ, E. (in print).- The psychosocial effects of an information program involving Spanish breast cancer patients. **Journal of Psychological Oncology**.
- GERLE, B., LUNDEN, G. and SANDBLOM, P. (1960).- The patient with inoperable cancer from the psychiatric and social standpoints. **Cancer**, **13**, 1206-1211.
- GREEN, L.W., WERLIN, S.H., SCHAUFFLER, H.H. and AVERY, C.H. (1977).- Research and demonstration issues in self-care: measuring the decline of mediocentrism. **Health Education Monographs**, **5**, 161-189.
- HENRIQUES, B., STADIL, F. and BADEN, H. (1980).- Patient information about cancer. **Acta Chirurgica Scandinavica**, **146**, 309-311.
- IBANÉZ, E. (1988).- La información como estrategia de dominio del estrés en pacientes aquejados de cáncer. **Boletín de Psicología**, **21**, 27-50.
- LENDERBERG, M.S., HOLLAND, J.C. and MASSIE, M.J. (1989).- Psychological aspects of patients with cancer. In V.T. DeVITA, S. HELLAMN y S.A. ROSENBERG (eds).- **Cancer: Principles and Practice of Oncology** (3th ed., vol. 2), Philadelphia, Lippincott.
- MISCHEL, M. and cols. (1984).- Predictors of psychosocial adjustment in patients newly diagnosed with cancer. **Cancer Nursing**, **7**, 291-299.
- MORRIS, T. (1979).- Psychological adjustment to mastectomy. **Cancer Treatment Review**, **6**, 41-61.
- PARSONS, T. (1951).- **The social system**, New York, Free Press.
- PATEL, J.J. and cols. (1980).- Psychological manifestations in cancer patients. **Indian Journal of Clinical Psychology**, **7**, 147-150.
- PECK, A. (1972).- Emotional reactions to having cancer. **American Journal of Roentgenology**, **114**, 591-599.
- REEDER, L. (1972).- The patient-client as a consumer: some observations on the changing professional-client relationships. **Journal of Health and Social Behavior**, **13**, 406-412.
- REISER, S.J. (1980).- Words as scalpels: Transmitting evidence in the clinical dialogue. **Annals of Internal Medicine**, **92**, 837-842.
- SIMES, R.J., TATTERSALL, M.H.N., COATES, A.S. and cols. (1986).- Randomised comparison of procedures for obtained informed consent in clinical trials of treatment for cancer. **British Medical Journal**, **293**, 1065-1068.
- TRES SANCHEZ, A., BAILON, M.J., LOBO, A. and SAEZ, M.J. (1987).- A prospective study of psychopathology in patients with breast cancer. **First Meeting of the European Society of Psychosocial Oncology**, Madrid.
- VANDERPOOL, H.Y. y WEISS, G.B. (1987).- Ethics and cancer: A survey of the literature. **Southern Medical Journal**, **80**, **4**, 500-506.