

QUALITY OF LIFE IN PATIENTS WITH IRRITABLE BOWEL SYNDROME

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Quality of life of thirty-one patients with Irritable Bowel Syndrome (IBS) suffering from recurrent abdominal pain and disturbed bowel function of mild severity was assessed. Questionnaires and behavioural interview for analyzing clinical symptoms, functional status and well-being, emotional state, social support, illness behavior and everyday life limitations were used. Results suggest that IBS does not reduce quality of life in this sample of patients. Correlational analysis and logistical regression indicate that the behavioural characteristics of IBS are more helpful for explaining quality of life than the symptoms. Depressive state (HAD-D), illness behaviour, appreciation of everyday limitations (IBS-QOL, NHP) and discomfort in relation to disturbed bowel function, bloatedness and fatigue are the parameters that maintain a significant relationship with poorer quality of life in the patients from this study.

Se evalúa la calidad de vida en una muestra de 31 pacientes diagnosticados de Síndrome del Intestino Irritable (SII) con sintomatología mixta (dolor y alteración del hábito intestinal), de moderada intensidad y de curso crónico. Se indaga, mediante autoinformes y cuestionarios estandarizados, las manifestaciones clínicas características, la capacidad funcional, el estado emocional, el apoyo social, las conductas de enfermedad, el estado de salud y las limitaciones cotidianas. Los resultados, considerada la muestra en su conjunto, indican que el SII no empeora la calidad de vida. Los análisis correlacionales y de regresión logística señalan que son las peculiaridades comportamentales que definen este trastorno antes que la sintomatología digestiva las condiciones más potentes para explicar la calidad de vida de los pacientes. El estado depresivo (HAD-D), las manifestaciones de enfermedad (Kellner), la apreciación de limitaciones cotidianas (IBS-QOL, NHP) y las molestias en relación a la deposición, hinchazón y fatiga son los parámetros que mayor y más significativa relación guardan con una peor valoración de la calidad de vida en la muestra de estudio.

Irritable bowel syndrome (IBS) is a functional disorder characterized by a set of gastrointestinal symptoms with no known organic basis. Defining this clinical condition are abdominal pain and disturbed bowel function often associated with extradiigestive symptoms. Although it does not present morbi-mortality, its course is chronic or recidivant, and it is the principal gastroenterological reason for consulting doctors, especially GPs, giving rise to high costs at a social and health service level. Even so, it should be pointed out that, while its incidence in the general population is around 10-15%, only a portion of these require treatment. Factors associated with seeing a doctor are severity of symptoms and psychological discomfort (Wiklund & Glise, 1998).

Indeed, numerous studies indicate the presence of

psychological disorders among patients with IBS. These people display anxiety and depression behaviours more frequently than the general population and than patients with organic digestive illnesses. Nevertheless, it must be stressed that it is precisely those who most often see doctors about intestinal problems that report most emotional disturbances, worry most about their health, rate their physical condition lowest, and display most illness behaviours (Gick & Thompson, 1997; Walker, Gelfand, Gelfand & Katon, 1995; Blanchard, Scharff, Schwarz, Suls & Barlow, 1990; Whitehead, Bosmajian, Zonderman, Costa & Schuster, 1988, Creed & Guthrie, 1987). It has been pointed out that learned chronic illness behaviour is a characteristic and defining condition of IBS patients with respect to organic digestive disorder patients (Whitehead, Winget, Fedoravicius, Wooley & Blackwell, 1982). On the other hand, situations of tension or stress are commonly and clearly found to trigger digestive symptoms in many of these patients. In this context, behavioural interventions – designed for developing behaviours alternative to chronic sufferers’

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repertoire and improving their capacity to mitigate physiological activation and manage situations of stress – have shown themselves to be effective in the treatment of IBS (Fernández, Pérez, Amigo & Linares, 1998; González, Fernández & García, 1998; Blanchard Schwarz, Suls, 1992; Schwarz, Taylor, Scharff & Blanchard, 1990).

IBS, therefore, can have a significant impact on quality of life (Glia & Lindberg, 1997, Talley, Weaver & Zinsmeister, 1995, Danquechim, Delvaux, Allemand, Allouche, Van Egroo & Lepen, 1994). The disorder can be said to affect *all everyday contexts*: work, social, sexual, domestic, leisure, and so on (Corney & Stanton, 1990; Dancy & Backhouse, 1993), and these alterations are observed to the same extent in people from different cultures (Hahn, Yan & Strassels, 1999). Various studies have coincided in pointing out that quality of life in those with gastrointestinal functional is poorer than in patients with organic illness (Drossman, Li, Leserman, Toomey & Hu, 1996). Pain is reported as the condition that has the most adverse effect on quality of life (Schwarz, Blanchard, Berreman, Scharff, Taylor, Greene, Suls & Malamood, 1993; Drossman, Li, Leserman, Toomey & Hu, 1996). Even so, many authors note the importance, along with symptom severity, of psychosocial factors, and in particular the relationship between these two, as the most important elements for predicting quality of life in IBS (Bennett, Piesse, Palmer, Badcock, Tennant & Kellow, 1998; Naliboff, Balice & Mayer, 1998). There is growing interest in the assessment of quality of life in these patients, and in identifying the areas affected. In this regard, the generic quality of life instruments designed for collecting data on functional capacity and social and psychological adjustment do not seem appropriate for assessing the particular impact of IBS symptoms and the way sufferers perceive their quality of life. Valid and specific measurements of quality of life in IBS would have important repercussions for approaches to this disorder.

The objective of the present study was to analyze the clinical and behavioural parameters characteristic of IBS as predictors of general subjective state and quality of life reported by patients. In a sample of IBS patients, by means of applying self-report and standardized quality of life instruments (general and specific) to patients and gastroenterologists, we studied over a specific period the following elements: characteristic clinical features, functional capacity, emotional state, social support, illness behaviours, state of health, limitations, and quality of life, as well as the interactions of these factors.

SAMPLE

The sample was made up of 31 patients diagnosed with IBS at the gastroenterology Service of the Hospital Central de Asturias and the “La Lila” local clinic, both in Oviedo (NW Spain). Three gastroenterologists participated in the study. Over a period of six months, each doctor asked all patients that fulfilled the IBS diagnostic criteria (Drossman, Thompson, Talley & cols., 1990) for their consent to be included in a study on the effects of IBS on quality of life. All patients diagnosed with IBS that gave their consent were included in the sample. The quality of life assessment was carried out by a psychologist. Of the total sample (N=31), 67.7% were women and 32.3% were men. Mean age was 44 years (s.d.=15.09), with a range of 18 to 68. As regards employment situation, the majority were active: 51.6% were in paid employment, 16.1% were homemakers (housewives), the same percentage were retired (16.1%), 12.9% were students, and just one was unemployed.

MATERIALS

Clinical protocol of the patient

This was filled out by the doctor during the patient’s visit, and was used for recording information on the intensity of the symptoms in the previous week and their frequency in the previous three months. Symptoms assessed were as follows: abdominal pain, liquid stools, discomfort in relation to liquid stools, discomfort in relation to hard stools, feeling of defecatory urgency, feeling of incomplete evacuation, burning sensation in the abdomen, belching, heartburn, bloatedness, nausea, defecation and changes in relation to defecation. We also recorded patients’ perception about their general state in the previous week and in the previous three months (very good, good, average, poor). With the information obtained we calculated for each patient one index for intensity of the symptoms and another for their frequency. In order to calculate the *intensity index*, each one of the symptoms, except for defecation (measured by number of occurrences), was assessed on a scale of 0 (“not at all”) to 3 (“a lot”), according to the intensity with which it was perceived by the participant, and the sum of these values (for each participant) was divided among the number of symptoms assessed. The same procedure was used for the *frequency index*, except that in this case the scale for each one of the symptoms went from 0 (“absence of the symptom”) to 4 (“continual presence of the symptom during the previous 3 months”), according to the frequency with which that symptom

occurred. From the intensity and frequency indices of each patient we calculated the mean value of the intensity and frequency of the symptoms in the total sample.

Semi-structured interview

This was designed for collecting demographic and clinical information and data on the effect of IBS on everyday life. In particular, we were interested in the following aspects: history of IBS, current digestive and extradigestive symptoms, evolution of the symptomatology (changes in frequency and/or intensity; maintenance of symptoms and/or appearance of new symptoms), medical and/or alternative treatments and their effectiveness, frequency of visits to the doctor, information on severity and prognosis of IBS, other illnesses, recognition of triggering factors of the symptoms, perceived consequences of the illness, limitations on everyday life and degree of satisfaction with everyday life. In all cases participants were asked to respond using coded response categories. The clinical data were completed and compared with the patient's clinical history.

Irritable Bowel Syndrome Quality of Life Instrument (IBS-QOL, Patrick, 1998)

This questionnaire was designed for assessing quality of life in people with IBS during the month prior to its application. It contains 34 items divided into 8 subscales (emotional state, interference with activities, body image, worry about health, food avoidance, social reaction, sex, and social relationships). Each of the items has five response alternatives made using a 5-point Likert-type scale, on which 1 indicates "no limitation" and 5 "total limitation." Eight scores (one for each dimension) are obtained, as well as a global score on a scale of 0 (indicating minimum quality of life) to 100 (maximum quality of life). This instrument has shown itself to have high internal consistency (Cronbach's alpha 0.95) and stability (0.86). As regards convergent and discriminant validity, the authors report satisfactory correlations with other specific measures of functional capacity and psychological well-being (Patrick, Drossman, Frederick, Dicesare & Puder, 1998). This questionnaire is not adapted or validated for a Spanish population.

Nottingham Health Profile (NHP, Hunt, 1980; Alonso, 1990)

Evaluates subjective perception of health problems. It has two parts, the first of which is made up of 38 items assessing six health dimensions (energy, pain, physical mobility, emotional reactions, sleep, and social isolation), in which respondents must answer yes or no,

depending on whether that situation is applicable to them or not. Six different scores are thus obtained, ranging from 0 (indicating absence of problems) to 100 (presence of all the problems). The second part contains seven questions about the presence of limitations in a series of functional daily life activities: work, domestic tasks, social life, family life, sex life, hobbies and leisure time. These items can only be answered with a yes/no response, and are analyzed as categorical variables. Validity values for the Spanish version range from 0.25 to 0.51. Reliability lies between 0.69 and 0.85, and internal consistency between moderate and high (with values of between 0.58 and 0.85).

Hospital Anxiety and Depression Scale (HAD, Zimong & Snaith, 1983)

Designed for evaluating the emotional state of those attended by non-psychiatric outpatient hospital services. With a view to avoiding false positives in the psychopathological assessment in these contexts, the authors exclude references to physical symptoms. The scale is made up of 14 items divided in two subscales of anxiety and depression, each with 7 items. Content of the items refers to patients' subjective perception of psychological aspects related to anxiety and depressive disorders. Each item has 4 response alternatives on a 0 to 4 Likert-type scale, which measure intensity of discomfort perceived by the patient. The authors situated the cut-off zone for the two subscales in the 8-10 range, considering as cases values higher than 11. The scale has a validity coefficient of 0.70; as regards reliability, a Cronbach's alpha of 0.80 was obtained for each one of the subscales.

Functional Social Support Questionnaire (Duke-UNC, Broadhead and cols., 1988)

This is a questionnaire made up of 11 items about respondents' opinion on the availability of people capable of offering help with their difficulties, and on their facility for establishing social relationships and communicating empathically and emotively. This questionnaire assess two dimensions of social support, confidence (items 7, 8, 6, 4, 1 and 10) and affect (items 11, 9, 2, 3 and 5). Response to each item is by means of a 1-5 Likert-type scale. There is a Spanish version of the questionnaire. Reliability is 0.80.

Health Locus of Control Scale (HLC, Wallston & cols, 1976)

This scale measures the type of attribution people make with respect to their health, that is, to which factors, external or internal, they attribute their state of health.

The questionnaire includes 11 items assessing the extent to which illnesses are attributed to internal or external causes. Participants must indicate, for each item, their level of agreement or disagreement based on a six-point Likert-type scale. There is a Spanish adaptation of this scale, implemented on a population with health problems. Reliability presents values of between 0.54 and 0.75, and the validity coefficients are reasonable.

Kellner Illness Behavior Questionnaire (KIBQ, Kellner, 1986)

This questionnaire provides a brief assessment in relation to the presence or absence of an illness behaviour pattern. It has 9 questions on respondents' beliefs and opinions about illness, to which they must answer "yes" or "no." Reliability data show values of between 0.67 and 0.87; internal consistency is 0.84.

The *Illness Behavior Subscale* permits rapid and simple assessment of the presence of a series of behaviours indicative of a pattern of illness behaviour. It consists of six questions related to the frequency with which respondents usually see the doctor, and to the way in which the illness incapacitates them. Each one of these questions has five response alternatives on a 5-point Likert-type scale, with values from 0 to 4. A score of 10 or higher would indicate illness behaviour (though there are no data for the population with IBS). A high correlation was found between this subscale and other scales measuring illness behaviour. The psychometric properties of this scale appear adequate for carrying out prospective measurements, that is, for establishing comparisons with other instruments rather than for comparing specific populations.

PROCEDURE

The study sample included all those patients with IBS diagnosis (Drossman, Thompson, Talley & cols., 1990) who, at their own request and/or in the already-programmed check-ups, were attended over a period of six months in two gastroenterology consulting rooms at the Hospital Central de Asturias, and, after being informed by the gastroenterologist about the aims of the research, gave their consent. The assessment process began in the consulting room where the doctor drew up the clinical protocol of the symptoms presented by the patient in the previous week and over the previous three months. Next, a psychologist interviewed the patients and they were asked to complete, during that session, the questionnaires IBS-QOL, NHP, HAD, Duke-UNC, HLC and KIBQ and Subscale. These were self-applied, except in a few cases (with older patients) where respondents

reported vision problems, in which completion of the questionnaire was supervised by the psychologist. This form of administration was accepted, since the majority of studies found no differences between one method and the other (de la Revilla Ahumada, Bailón, de Dios Luna, Delgado, Prados & Fleitas, 1991).

DATA ANALYSIS

The statistical tests used for analyzing the different clinical and psychological variables considered in the study are basically descriptive and correlational. We carried out analyses of variance with the aim of determining whether there were differences between men and women, and between our sample and the samples employed in the studies for calibrating the IBS-QOL and the Duke-UNC instruments. In those cases in which it was not possible to carry out a conventional ANOVA (where, because of the small sample size, the variables were not normally distributed) we used the Kruskal-Wallis test, in order to check whether there were actually any differences (in the questionnaire scores) considering different clinical characteristics of the participants. With some of the dichotomous variables, such as evolution of the IBS (continuous or interrupted), we used logistical regression.

RESULTS

Clinical history

As regards *history* of IBS, in four patients (12.9%) it was more than five years, in eleven (35%) it was between one and five years, but the majority of those in the sample, sixteen (51.6%), had been diagnosed in the past year. However, for *time with symptoms* the relationship is inverse, with just two patients reporting them to have begun in the last 12 months, ten (32.3%) between one and five years ago, and the remaining nineteen (61.3%) more than five years ago.

As far as *treatment* is concerned, 74.2 % of the sample was at the time of the study using a pharmacological treatment (generally combinations of antispasmodics and anti-depressants). Nevertheless, only two patients considered the treatment effective for eliminating the symptoms. On the other hand, seven people had turned to alternative treatments (yoga, herbal products, etc.).

With regard to annual number of *visits to the doctor* (gastroenterologist), just 12.9% indicated more than two consultations per year, and the majority (58%) reported one or less. For visits to the family doctor, there was a high percentage (38.7%) that did not see their GPs about digestive problems, while 22.6% reported more than 2 visits per year.

As regards *symptoms*, calculation of the mean intensity and frequency values of the symptoms in the Clinical Protocol indicates that the symptoms reported as most intense during the week in which the assessment was carried out (range from 0 to 3) were: bloatedness (1.52), incomplete evacuation of bowels (1.23), abdominal pain (1), sensation of defecatory urgency (0.97), and discomfort with hard stools (0.90). Mean of the sample in intensity of the symptoms was 0.86 (s.d.=0.50).

Frequency of the symptoms most common in the previous three months (on a scale of 0 to 4) gave the following values: bloatedness (2.42), abdominal pain (2.29), incomplete evacuation (2.26), liquid stools (1.97), discomfort with hard stools (1.90), discomfort with liquid stools (1.81), and sensation of defecatory urgency (1.71). Mean frequency for the sample was 1.78 (s.d.=0.85).

The sample as a whole was characterized by presenting a predominantly mixed symptomatology; over 25% reported the concurrence of diarrhoea, constipation and other symptoms.

With regard to extradigestive symptomatology, the mean of symptoms was 2.81, with a range from 0 symptoms to 7 symptoms (reported by just one participant). The most frequently reported extradigestive symptoms in the sample were: fatigue (61.3% of participants), headache (48.4%), backache (32.3%) insomnia (32.3%), apathy (32.2%), dizziness or fainting (25.8%), and mood swings (19.4%). As far as triggering factors of the symptoms are concerned, only 32.3% of the sample recognized them, reporting, among the most common, stress, changes in everyday routine, and diet.

In relation to *general state*, in the week in which the assessment was carried out it was "very good" for three patients, "good" for twelve, "average" for eleven, and "poor" for just five. This is in contrast to the general state in the previous six months, since the majority perceived their state as "average" or "poor" (15 and 13 patients, respectively), only three as "good," and none as "very good."

As regards the *information* participants had on their illness, 58.1% reported knowing what Irritable Bowel Syndrome was. This question was asked only in the patient's self-report.

Assessment of seriousness and incapacity in relation to IBS, made by the participants themselves, is as follows. The majority of the sample (73.3%) consider IBS as a mild disorder, and only 13.3% consider it serious. As for the incapacity it causes, 64.5% consider it an uncomfortable condition, with more judging it as of no importance than those considering it incapacitating (22.6% versus 12.9%).

Irritable Bowel Syndrome Quality of Life Instrument

The mean in the IBS-QOL (mean=75.52; s.d.=21.01) is fairly high, indicating good quality of life in the study group. The same occurs in the different scales of the IBS-QOL. As can be seen in Table 1, high values are found in all the scales, with the lowest mean that of the Food Avoidance scale (mean=67.47; s.d.=27.08) and the highest those of Sex Life (mean=83.06; s.d.=28.79) and Sociability (mean=83.06; s.d.=22.31). Thus, a comparison of our data with those of that used in the validation of the questionnaire (Patrick & cols., 1998) indicates significant differences ($p<0.05$); even so, on analyzing the data by sex, we find differences in the women but not in the men. Differences always mean higher scores in our sample, both for the total scale and for the majority of the subscales, except for the Social Reaction scale.

Nottingham Health Profile

The NHP, as can be seen in Table 1, also shows values indicative of a good perception of state of health. In this case, since the sample size is under 50, the authors advise using the median. If we consider that the scores are on a scale of 0 to 100 and that values close to 0 are indicative of a "good perception of state of health," the median value was very low (median=17.13). As regards the different scales, the lowest values (indicating good state) are found for Energy (median=0) and Social Isolation (median=0), and the highest value for Sleep (median=20).

Hospital Anxiety and Depression Scale. HAD

In the HAD (Table 1), the mean (mean=10.48, s.d.=7.67) is below the cut-off point that would indicate disturbed emotional state (scores over 11). Percentage of cases found in the sample is 35.48%, and that of borderline cases, 29.03%. There are 22.58% of anxiety cases and 6.45% of depression cases.

Functional Social Support Questionnaire. Duke-UNC

The FSSQ (Table 1), like the majority of the questionnaires, presents a high value (mean=48.03; s.d.=6.60), which would be indicative of good perceived social support. Comparison of this mean with that presented in the study (with a Spanish population) by Revilla, Bailón, de Dios, Delgado, Prados and Fleitas (1991), shows significant differences between the two samples, with better perceived support in the sample from our study ($p<0.02$).

Health Locus of Control Scale. HLC

Mean of the scores in the HLC (Table 1) presents an

intermediate value (mean=32; s.d.=9.05), perhaps tending towards an external locus, since the range of scores in this questionnaire is from 11 to 66, with high scores related to internal locus and low scores to external locus.

Kellner Illness Behavior Questionnaire. KIBQ

In the KIBQ (Table 1), the mean (mean=2.03; s.d.=1.99) is below the cut-off point that would indicate a case of illness behaviour (scores of 4 or above). The percentage of cases found in the sample was 16.12%. However, in the *Illness Behavior Subscale* (mean=8.97; s.d.=4.98) the percentage of cases was higher, at 38.7%.

Correlational analysis

The highest correlations of the IBS-QOL were found basically with some of the questionnaires. Thus, the quality of life scores appear to be related mainly to: emotional state, above all depression measured by the HAD (-0.001); problems the IBS may cause in everyday life, measured by means of part two of the NHP (-0.001); illness behaviour, measured by means of the Kellner questionnaire (-0.001); and perception of state of health (correlations with NHP, -0.001). The digestive symptoms with which most correlation was found are those related to stools (especially to discomfort associated with hard stools (-0.001) and bloatedness (-0.009). On the other hand, this questionnaire does not correlate with extradigestive symptoms. The correlations of this questionnaire are negative, since it scores inversely with respect to the rest of the instruments.

With regard to the *subscales of the IBS-QOL*, the majority correlate basically with the same questionnaires as the total scale, though there are some exceptions. Thus, among the highest correlations of the *Body Image* scale are symptoms such as incomplete evacuation (-0.001) and discomfort in relation to hard stools (-0.001). Also, the *Health Worries* scale correlates in particular with bloatedness (-0.001) and abdominal pain (-0.001), and this is significant in the latter case, as it does not correlate with any of the other scales or with the total scale. In the case of the *Food Avoidance* scale, it only correlates significantly with digestive symptoms. In contrast, none of the scales correlates with extradigestive symptoms (only the *Sex Life* scale correlating with fatigue (-0.031)).

The NHP, like the IBS-QOL, presents the highest correlations with some of the questionnaires, but the situation differs in that among the highest correlations of the NHP are also extradigestive symptoms: apathy (0.001) and fatigue (0.047). Thus, the scores in this questionnaire appear to be related basically to: emotio-

nal state, measured by the HAD (0.001), and especially the scores in depression (0.001); apathy (0.001); and quality of life measured by the IBS-QOL (-0.001). The scales in the *first part* of the NHP maintain practically the same correlations as the total scale; as for the *second part*, the scores seem to be related to: emotional state (HAD depression scale (0.001) and total scale (0.001)); quality of life measured by the IBS-QOL (-0.001); illness behaviour measured by the subscale (0.001); one extradigestive symptom (apathy, 0.032)); feeling of incomplete evacuation (0.001); and general state in the previous week (0.001).

The HAD scores correlate basically with perception of health measured by the NHP (0.001), evolution of IBS (-0.001) (a continuous evolution is related to higher scores in this questionnaire), and quality of life measured by means of the IBS-QOL (-0.001). There are other significant correlations, important among which are those found with the two Illness Behavior questionnaires (0.007 with the Kellner questionnaire and 0.029 with the subscale), digestive symptoms referring basically to stools (e.g., a significance of 0.006 is found with discom-

Table 1
Global scores of the study sample in the questionnaires IBS-QOL, NHP, HAD; DUKE-UNC; and KIBQ

	TOTAL (N=31) MEAN (s.d.)	WOMEN (N=21) MEAN (s.d.)	MEN (N=10) MEAN (s.d.)
IBS-QOL	75,52 (21,02)	76,96 (17)	72,49 (28,14)
Emotion	77,02 (22,93)	81,10 (15,76)	68,44 (32,86)
Interference with activity	73 73 (24)	95,41(18,64)	68,21(33,14)
Body image	75 (24,15)	81,93 (23,84)	75,64 (26,10)
Health worries	73,92 (21,27)	73,41 (21,35)	75 (22,23)
Food avoidance	67 47 (27 08)	61,90 (26,82)	79,16 (24,93)
Social reaction	76,62 (28,04)	75,3 (27,49)	79,39 (30,48)
Sex life	83,06 (28,79)	84,52 (28,20)	80 (31,29)
Sociability	83,06 (22,31)	86,90 (18,3n)	75 (28,33)
Duke-UNC	48,03 (6,60)	48,10 (6,37)	47,9 (7,40)
HLC	32 (9,05)	33 (9,51)	29,9 (8,06)
KIBQ	2,03 (1,99)	1,38 (0,92)	3,4 (2,88)
Subscale KIBQ	8,97 (4,98)	9,19 (4,47)	8,5 (6,15)
HAD	10,48(7,67)	9,71 (5,68)	12,1(10,96)
Anxiety	6 90 (4,56)	6,67 (4,15)	7,4 (5,52)
Depression	3 58 (4)	3,05 (2,77)	4,7 (5,85)
NHP I*(1)	17,13	81,25	84,38
Energy	0	0	0
Pain	1 2,50	25	0
Emotion	11,10	11,10	16,65
Sleep	20	20	10
Social isolation	0	0	20
Mobility	12,50	12,50	0
NHP II*(2)	1	1	0,5

*(1) In the case of the NHP I and its scales the data show are medians, as the authors recommend their use when the sample is small.

*(2) In the NHP II the modes are shown, as the variable is nominal.

fort associated with hard stools), and extradigestive symptoms such as apathy (0.006).

The correlations of the two *HAD Scales*, that of *Anxiety* and that of *Depression*, are practically the same as those of the total scale, though the depression scale is that which shows the highest correlations with the rest of the questionnaires, and is the only one of the three that correlates with the Social Support Questionnaire (-0.022).

As regards the *Social Support Questionnaire* (Duke-UNC), it scarcely correlates with symptoms, though curiously, the most significant correlations are shown with a digestive symptom, liquid stools in the previous week (-0.001), and with an extradigestive symptom, insomnia (0.010). It also correlates with very few questionnaires, but the most noteworthy correlations are those with the Health Worries scale of the IBS-QOL (0.013) and the depression scale of the HAD (-0.022).

The *Kellner Illness Behavior Questionnaire* correlates basically with the IBS-QOL (-0.001) and all its scales, especially that of Emotion (-0.001). Also among its highest correlations are those with the HAD depression scale (0.001). A curious finding is the significant and positive correlation found with the variable sex (0.006), indicating that the men in the study show higher scores in illness behaviour. On the other hand, it only correlates significantly with one digestive symptom, liquid stools (0.032), and with one extradigestive symptom, mood swings (0.042). The correlation found with general state in the previous week is significant (0.013). The *Illness Behavior* subscale shows its highest correlations with the NHP scores (0.003), especially with its pain scale (0.001). Also worthy of note is the correlation found with number of visits to the gastroenterologist (0.001). The remaining significant correlations are found with the HAD (0.029), above all with its depression scale (0.008), and with the IBS-QOL (-0.022) and some of its scales. It also correlates with one extradigestive symptom, muscular pain (0.015) and evolution of IBS (-0.049) (a continuous evolution is related to higher scores in illness behaviour).

As regards the *Health Locus of Control Questionnaire (HLC)*, the only significant correlations found are with age (-0.000), employment situation (-0.004), general state in the previous three months (-0.042) and abdominal pain in the previous six months (-0.029). Thus, an internal locus would appear to be related to less age, better general state and lower frequency of abdominal pain.

Perception of general state in the previous week correlates basically with perception of general state in the

previous three months (0.001), emotional state (Emotion scale of the IBS-QOL (0.001) and the HAD depression (0.008) and total (0.021) scales), symptoms related to constipation (discomfort in relation to hard stools (0.001) and bloatedness (0.004)), problems or limitations in everyday life (part two of the NHP (0.001) and total scale of the IBS-QOL (0.007)) and illness behaviour (Kellner questionnaire; 0.013). It also shows a significant, though smaller, correlation with one extradigestive symptom, fatigue (0.010).

Perception of general state in the previous three months shows its highest correlation with fatigue (0.001). It also correlates significantly with frequency of digestive symptoms (0.006) and number of extradigestive symptoms (0.046).

Assessment of incapacity correlates especially with the IBS-QOL questionnaire (0.001), both its total scale and the majority of its scales. Thus, it can be stated that a more incapacitating assessment is related to poorer quality of life. Also worthy of note is the high correlation found with the variable Information (0.002); this would indicate that having information on IBS is related to an assessment of the illness as more incapacitating. Another important correlation is that found with pain-constipation symptomatology (0.017), a positive correlation which would indicate that the presence of these symptoms is associated with an assessment of IBS as more incapacitating. On the other hand, we find a negative correlation with anxiety (-0.037), suggesting an association between the presence of this symptom and an assessment of IBS as less incapacitating.

Assessment of severity correlates significantly with only three variables: the Health Worries scale of the IBS-QOL (-0.008), pain as a predominant symptom (0.019) and employment situation (0.023).

From the correlations found with the variable *visits to the gastroenterologist* it can be concluded that the number of visits is related to variables such as interference with everyday activities measured with the IBS-QOL A (-0.020), emotional state measured with the IBS-QOL E (-0.042), pain measured with the NHP P (0.013) and predominant presence of both digestive and extradigestive symptoms (-0.030).

As for *visits to the family doctor*, the highest correlations are found with an extradigestive symptom, mood swings (0.017), and with a digestive symptom, weekly bowel movements (-0.019).

With regard to *history of IBS*, the most notable correlations are those found with the variable "information on IBS" (0.041) and the Social Support questionnaire (-

0.044). From these correlations it can be deduced that having information about the disorder is related to more time elapsed since the diagnosis; equally, greater perceived social support is related to more time since diagnosis.

The only noteworthy correlations of those found with the variable *triggering factors* are those found for State of Health (-0.013) and Apathy (0.035). The first of these correlations is negative, and would indicate that recognition of triggering factors on the part of the patient is related to a more positive perception of state of health; the second is positive, and would indicate an association between triggering factors and the presence of apathy.

Analysis of variance

An analysis of variance was carried out to check whether there were significant differences between men and women with regard to scores on all the questionnaires. The only significant difference was that found between men and women in the Kellner IBQ, in which men scored higher than women (Table 1).

Kruskal-Wallis analysis

We used the Kruskal-Wallis test to determine whether there were any differences between participants as a function of the following conditions: perception of general state (in the previous week and in the previous three months), perception of incapacity produced by IBS, assessment of the severity of the disorder, number of visits to the family doctor, and number of visits to the gastroenterologist. The analyses producing significant results were the following:

- *Analysis of the relationship between general state in the last six months and scores on the Duke-UNC:* On comparing participants' scores on the Duke-UNC as a function of their general state in the previous six months, we found some significant differences (0.051). In order to determine between which groups these differences occurred, we used the Games-Howell test. Thus, those who perceived their state as "Good" showed better perceived social support than those who perceived it as "Average" (0.001) or "Poor" (0.027). No differences were found, however, between participants who perceived their state as "Average" and those who perceived it as "Poor."
- *Analysis of the relationship between incapacity and scores on the IBS-QOL:* In this analysis we found significant differences in the IBS-QOL scores as a function of the way participants rated the incapacity caused by IBS (0.005). In this case the Games-Howell

test for multiple comparisons was not significant, but the Scheffé test did show significance. Thus, those who rated IBS as incapacitating obtained lower scores on the IBS-QOL than those who considered it "uncomfortable" (0.006) or "unimportant" (0.001). No other differences between groups were observed.

- *Analysis of the relationship between visits to the family doctor and illness behaviour scores:* Using the Kruskal-Wallis analysis we found significant differences (0.019) in scores on the Kellner questionnaire as a function of number of visits to the family doctor. Multiple comparisons were then carried out to determine between which groups the differences occurred. The Scheffé test showed a significant difference between participants that had visited the GP at least once a year and those that had visited more than twice a year (0.033); those visiting more than twice a year scored higher in illness behaviour than those who visited less than once a year.

Logistical regression

A logistical regression was carried out with the aim of determining the predictive capacity of the variables studied through the psychological questionnaires and the continuous or interrupted evolution of the symptoms. Emotional state measured by means of the HAD was found to permit correct classification in 80.65% of cases.

DISCUSSION

IBS is a chronic and recidivant disorder that affects all everyday contexts and gives rise to high social and health service costs and emotional unease among sufferers. Assessment of the impact of IBS on quality of life and, in particular, the recognition of the predictors of patients' subjective general state and reported quality of life would have clear repercussions for approaches to this disorder. With this objective, in the present work we studied, in a sample of IBS patients, and by means of self-report measures and standardized instruments applied to patients and gastroenterologists, a series of factors and their relationships: the characteristic clinical features, functional capacity, emotional state, social support, illness behaviours, state of health, limitations and quality of life.

To guarantee the achievement of this objective it would undoubtedly be necessary to work with a large and representative sample, not only in relation to demographic variables but also to the clinical and behavioural features that define this disorder. In the present study it was not possible to fulfil this condition. The sample size is

small, and this compromises the generalizability of the results. Even so, the participants in our study do present some well-defined characteristics that make it possible to defend our results as representative, at least, of this type of patient. We are referring to patients that present chronic symptoms, predominantly mixed (pain and alteration of bowel movements) and of mild intensity, that rate their disorder as not incapacitating and judge their current state of health as between average and good, that have been diagnosed recently (between one and five years ago – even though the symptoms date back further), and that, though unresponsive to medical treatment, do not frequently ask for medical help. Thus, the results obtained, which, in general (and in contrast to the findings generally reported in the literature), indicate good quality of life in the sample studied, are explained and can be generalized for this type of IBS sufferer. These people, while being the commonest type of IBS patient, are not representative of those that consult doctors most and display most illness behaviours and emotional disorders. It should be noted here that those making up the study sample were not assigned totally at random, since two of the gastroenterologists participating in the study admitted having deliberately excluded non-collaborative patients. This circumstance limited the size and the representativeness of the sample, but in no case does it devalue the results obtained.

Quality of life reported by the study sample is good in relation to the general population, as indicated by the results of the NHP, and better than that reported by the sample of IBS patients used for validating the IBS-QOL. The results obtained in all the subscales of the two instruments are congruent, and, considering the average values, the sample is characterized by absence of limitations, emotional adjustment, adequate social adaptation and good perception of state of health. Assessment of emotional state by means of the HAD would indicate absence of alterations taking the sample as a whole, and considering particularly the cases we find 6.25% of depression cases and a higher percentage (22.5%) of anxiety. As regards perceived social support, this is high, and higher than that of the sample used for standardization of the Duke-UNC. The presence of illness behaviours in the sample is scarce, and only appears to apply to less than a third of the patients; a similar percentage of participants report recognizing triggering factors of the symptomatology.

It appears that IBS, with the clinical features presented by our study sample as a whole, does not reduce the quality of life of these patients. However, the symptomatic and

behavioural characteristics of the sample are obviously not the same in all cases. Differences between patients are observed in the occurrence of digestive and extradigestive symptoms, and in particular – although in no variable is more than one third of the sample affected – in the presence of emotional alterations, illness behaviours and reported perception of severity and incapacity. Thus, analysis of the correlations between variables seems to indicate how these latter aspects are related to poorer quality of life. Depression (HAD-D), illness behaviours (Kellner) and perceived state of health (NHP) always correlate with poorer quality of life measured by means of the NHP and the IBS-QOL. As regards symptoms, discomfort related to constipation (hard stools, bloatedness, incomplete evacuation) always correlate with poorer quality of life (measured by means of the NHP and the IBS-QOL and their respective subscales). In relation to the two instruments for measuring quality of life, three points should be stressed. First, the data from each correlate significantly with those of the other, and with those of all their subscales. Second, there is coincidence between the variables with which both correlate significantly: emotional state (HAD), illness behaviour (Kellner) and general state in the previous week. Third, the specificity of the IBS-QOL for assessing IBS patients' quality of life is indicated by the significant correlations shown by the results in these instruments with the patients' symptomatology data; this is in contrast to the NHP, which only shows relevant correlations with extradigestive symptoms and incomplete evacuation. The strongest correlations of the IBS-QOL with the symptoms are found between the subscales Body Image, Health Worries and Food Avoidance with incomplete evacuation, hard stools and pain.

As regards emotional state measured by the HAD, the data obtained would appear to be directly related to quality of life (IBS-QOL, NHP), perception of health and evolution of IBS. Thus, continuous evolution would be related to poorer adjustment. On the other hand, it is worthy of note that between depression (HAD-D) and social support (Duke-UNC) there is an inverse relationship. Moreover, perceived social support (Duke-UNC) showed itself to be a significant variable in relation to general state in the previous three months. Participants who perceived their state as good reported better support than those who considered their state as average or poor. As regards illness behaviour (Kellner Scale and Subscale), the data are inversely related to quality of life (IBS-QOL) and directly to depression (HAD-D), to the NHP pain scale and to number of visits to the gastroenterologist. Specifically, statistically significant differen-

ces were found between scores on the Kellner scale and number of visits to the doctor. With the variable triggering factors, the correlations found with state of health would indicate that identifying triggering factors of the symptoms implies a more positive perception of state of health. Likewise, where there is anxiety patients perceive IBS as less incapacitating, while its rating as more incapacitating is associated with poorer quality of life as measured by the IBS-QOL: patients who considered IBS as incapacitating obtained significantly poorer scores than those who considered it as merely uncomfortable or unimportant. As regards the correlations shown between the variables analyzed in the study and patients' perception of their general state over the previous week, it would seem to be the emotional variables (HAD), especially depression (HAD-D), limitations on everyday life (NHP, IBS-QOL), illness behaviours (Kellner) and discomfort in relation to hard stools, bloatedness and fatigue that are related to more negative ratings.

The results obtained, even bearing in mind (and also in spite of) the small sample size and its clinical characteristics, appear to indicate that it is precisely behavioural peculiarities, rather than digestive symptoms, that are the most powerful conditions for explaining patients' quality of life. Thus, in the study sample, emotional state (HAD) permits correct classification of 80.65% of cases in relation to continuous or interrupted evolution of the symptoms. Depressive state (HAD-D), illness behaviour (Kellner), appreciation of everyday limitations (IBS-QOL, NHP) and discomfort in relation to hard stools, bloatedness and fatigue are the parameters that show the strongest and most significant relationship with poorer quality of life. These results, though they can in no way be considered conclusive, do appear relevant in that they coincide with those of studies for the characterization and treatment of IBS. Specifically, the psychological variables discussed here have already been reported in the literature on psychological treatments for IBS (Fernández, Pérez, Amigo & Linares, 1998) as predictors of poor clinical prognosis; at the same time, recognition of triggering factors and anxiety, which in the present study are associated with a less incapacitating appreciation of IBS and a more positive rating of state of health, are linked to therapeutic benefits, especially if the patient does not present illness behaviours. Bearing in mind the above, it seems reasonable to state that these conditions, although they would have to be analyzed with larger samples and their stability over time would need to be considered, can be taken into account right from the initial assessment of IBS patients. As far as the assessment

instruments are concerned, the utility of a specific scale such as the IBS-QOL seems assured, even though more extensive studies are required. The correlations between the data it provides and those of other standardized scales of quality of life (NHP) and emotional state (HAD) support its validity, but what seems to make it particularly appropriate is the analysis of symptomatic features and the relationships we have found here between symptoms and the different areas of quality of life.

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