

Antonio Higuera, Hugo Carretero-Dios, José P. Muñoz, Esther Idini, Ana Ortiz, Francisco Rincón, David Prieto
-Merino, María M. Rodríguez del Águila
Effects of a humor-centered activity on disruptive behavior in patients in a general hospital psychiatric ward
International Journal of Clinical and Health Psychology, vol. 6, núm. 1, enero, 2006, pp. 53-64,
Asociación Española de Psicología Conductual
España

Available in: <http://www.redalyc.org/articulo.oa?id=33760104>

**International Journal of
Clinical and Health
Psychology**

*International Journal of Clinical and Health
Psychology,*

ISSN (Printed Version): 1697-2600

jcsierra@ugr.es

Asociación Española de Psicología Conductual
España

[How to cite](#)

[Complete issue](#)

[More information about this article](#)

[Journal's homepage](#)

www.redalyc.org

Non-Profit Academic Project, developed under the Open Access Initiative



Effects of a humor-centered activity on disruptive behavior in patients in a general hospital psychiatric ward¹

Antonio Higuera (Hospital Universitario Virgen de las Nieves, Universidad de Granada, España), Hugo Carretero-Dios² (Universidad de Granada, España), José P. Muñoz (Hospital Universitario Virgen de las Nieves, España), Esther Idini (Hospital Universitario Virgen de las Nieves, España), Ana Ortiz (Hospital Universitario Virgen de las Nieves, España), Francisco Rincón (Hospital Universitario Virgen de las Nieves, España), David Prieto-Merino (Hospital Universitario Virgen de las Nieves, España), and María M. Rodríguez del Águila (Hospital Universitario Virgen de las Nieves, España)

(Recibido 30 de noviembre 2004/ Received November 30, 2004)

(Aceptado 24 de enero 2005 / Accepted January 24, 2005)

ABSTRACT. The aim of this quasi-experimental study is to investigate the effects of a humor-based activity on disruptive behaviors in patients hospitalized in a psychiatric ward. It be compared two homogeneous samples of patients hospitalized in the psychiatric ward of a general hospital (acute ward) during two 83-day-long periods designated baseline (period 1) and activity (period 2). Ten behaviors considered disruptive (DB)

¹ This study was made possible by funding from the Fundación Virgen de las Nieves in Granada (Spain), which allowed us to obtain equipment and other key material. This study would not have been possible without the professional collaboration and enthusiasm of the Titiritas Clown group, who were the stars of the humor-based activities on the ward. We offer special thanks to the members of this group: José Pérez de la Blanca, Francisco Parera, and Fernando Pérez de la Blanca. We also thank Dr Antonio Román de la Rosa for his valuable help with the incidence cards and data quality control, and K. Shashok for translating the original manuscript into English. The authors declare that none of us has and financial or other close relationship with any organization whose interests, financial or otherwise, may be affected by the publication of this paper.

² Correspondence: Facultad de Psicología. Universidad de Granada. 18071 Granada (España). E-mail hugocd@ugr.es

were defined and recorded during both periods. During the activity period, humor-based activities directed by professional actors (hospital clowns) were held two days per week. A indicator, called the Global Disruption Index (GDI), was calculated as the quotient between the total number of DB for a given period and the total number of patients per shift during that period, multiplied by 100. A Specific Disruption Index (SDI) was calculate for each of the 10 DB. The GDI decreased significantly during the activity period despite the larger number of patients on the ward. Three behaviors (attempted escape, self-injury, and fighting) also showed significant reductions during the activity period after the results were analyzed with the Bonferroni correction.

KEYWORDS. Humor. Psychiatric ward. Disruptive behaviors. Quasi-experimental study.

RESUMEN. El objetivo de este estudio cuasi-experimental es analizar lo efectos de una actividad centrada en el humor sobre las conductas disruptivas de pacientes hospitalizados en un servicio de Psiquiatría. Se han comparado, teniendo en cuenta dos grupos homogéneos de pacientes hospitalizados en un servicio de Psiquiatría de hospital general (unidad de agudos), dos periodos temporales de 83 días cada uno, siendo el período 1 el de línea base, y el período 2, el de intervención. Para ambos periodos, se codificaron y registraron un total de diez conductas disruptivas. En los 83 días del periodo de intervención, y con una frecuencia de dos días semanales, dos actores profesionales llevaban a cabo las actividades centradas en el humor. Se calculó un Índice de Disrupción Global (IGD), teniendo en cuenta conjuntamente todas las conductas disruptivas, al igual que un Índice de Disrupción Específico (IDE) para cada una de las conductas disruptivas. Usando para las comparaciones la corrección de Bonferroni, los resultados indican que el IGD descendió significativamente durante el periodo de intervención, siendo tres las conductas disruptivas que mostraron un descenso significativo (intentos de fuga, autolesiones y peleas).

PALABRAS CLAVE. Humor. Psiquiatría. Conductas disruptivas. Estudio Cuasi-experimental.

RESUMO. O objectivo deste estudo quase-experimental é analisar o efeito de uma actividade centrada no humor sobre os comportamentos disruptivos de pacientes hospitalizados num serviço de psiquiatria. Tendo em conta dois grupos homogéneos de pacientes hospitalizados num serviço de psiquiatria de um hospital peral (unidade de agudos), compararam-se dois períodos temporais de 83 dias cada uno, sendo o período 1 o da linha de base, e o período 2, o da intervenção. Para ambos os períodos, codificaram-se e registaram-se um total de dez comportamentos disruptivos. Nos 83 dias do período de intervenção, e com uma frequência de dois dias semanais, dois actores profissionais levavam a cabo as actividades centradas no humor. Calculou-se um Índice de Disrupção Global (IGD), tendo em conta conjuntamente todas os comportamentos disruptivos, e um Índice de Disrupção Específico (IDE) para cada um dos comportamentos disruptivos. Usando para as comparações a correcção de Bonferroni, os resultados indicam que o IGD desceu significativamente durante o período de intervenção, sendo três os comportamentos disruptivos que mostraram uma descida significativa (intenção de fuga, auto-ferimentos e lutas).

PALAVRAS CHAVE. Humor. Psiquiatria. Comportamentos disruptivos. Estudo quase-experimental.

Introduction

Therapeutic activity for episodes of critical illness in a psychiatric ward at a general hospital is mediated by a variety of circumstances that make such therapy difficult. Problems often seen in this type of ward include unawareness of illness, disruptive behaviors (DB) arising from the disorder and in response to withdrawal from drugs in dual diagnoses, and reactions to involuntary treatment, as occurs in 60% of the cases in our setting (Higuera, 1993). To this complex therapeutic relationship must be added the time limitations and pressures from health care managers who urge clinicians to achieve remission of episodes in less than three weeks. The therapeutic procedures currently in use can be grouped into three categories: psychotherapy, generally aimed at providing support; psychiatric drugs, which bring about partial remission of symptoms; and a third element which is not always taken into account: the therapeutic setting. At the Psychiatric Service of the Virgen de las Nieves University Hospital in Granada, Spain, we have been interested for some time now in research into the environment in which the patient is immersed during hospitalization, and in the factors that may give rise to a truly therapeutic environment.

The concept of environment, considered to comprise “everything that surrounds persons and things,” is broad enough to allow multiple factors that influence this environment to be taken into consideration. Two features are of particular interest in connection with psychiatric services at a general hospital: firstly, DB manifested by some patients and the responses they trigger in staff members; and secondly, certain characteristics of the dynamics on the ward. These latter factors, which can contribute to a more favorable environment, include participatory meetings of both staff members and patients, group activities, background music, relaxation, and leisure-time activities. Within the system of interactive factors, any positive modification in the environment has the potential to reduce patients’ DB. To investigate DB, we designed an intervention centered on humor which was implemented by a group of professional clowns who are members of an initiative known as the “hospital clown movement”. Similar research has been done in hospital settings in Spain for cancer patients and pediatric patients (Bellert, 1989; Erdman, 1993).

The benefits of humor for certain illnesses first began to be investigated in the 1960s, when humor was reported to release endorphins, trigger complex neurological and functional mechanisms, and modify the immune, cardiovascular, respiratory and nervous systems (Boyle and Joss-Reid, 2004; Cann, Holt and Calhoun, 1999; Fry, 1992; Kamei, Kumano, and Masumura, 1997). Persons with a good sense of humor seemed to show a tendency to suffer fewer illnesses in general, including some emotional alterations (Martin, 2001; McGhee, 1999). Paradoxically, humor has been used less often as a tool to modify the environment in psychiatric wards.

Like other authors (Berk, Stanley, and Tan, 1989; Campbell, 1997; Dziegielewski, Jacinto, Laudadio, and Legg-Rodriguez, 2003; Greenvald, 1990; Nezu, Nezu, and Blisset, 1988; Scholl and Ragan, 2003; Yovetich, Dale, and Hudak, 1990), we believe that humor releases tension, facilitates communication with ones surroundings, and helps establish a wider social network, manifested especially as enhanced integration between patients and staff members. Findings of relevance have been reported in an interesting

study by Gelkopf and colleagues at the Lev Asaron Mental Health Medical Center and by researchers at the Department of Psychology of the University of Tel Aviv in Israel (Gelkopf, Kreitler and Sigal, 1993; Gelkopf, Sigal and Kramer, 1994). It should be noted, however, that participants in this study were exposed to humor passively by watching comedy films.

The present study differed from this earlier experience in the following aspects:

- The intervention we tried was used for acute patients (with episodes of decompensation or crisis) hospitalized in the psychiatric ward of a general hospital.
- The humor-centered activity was oriented toward a more active form of participation by patients.
- Although humor was the major feature of the intervention, the activity performed by the clowns involved other elements such as playing games and using imaginary situations (Cohn-Jones, 2000).
- Finally, our experimental design made it possible to observe the influence of the activity on the number of DB during a given period, thus allowing us to compare the number of these behaviors with those recorded during a different period in which no humor-centered activity took place.

In addition, there were several considerations suggested that involving the nursing staff would be beneficial:

- A number of studies have reported the use of humor in patient care (Aestedt and Liukkonen, 1994; Harrison, 1995; Hunt, 1993; Leise, 1993; Mallet, 1993; Scholly Ragan, 2003).
- One aim was to foment greater bonds between patients and staff members through their joint participation in the activity and by the better acceptance of staff members by patients, as described by Gelkopf and colleagues.
- The presence of nursing staff members who the patients knew personally reduced their reluctance to participate in the activity with a group of professionals whom they did not know, and facilitated the management of situations that required help from the nursing staff.

Because no information was available about similar studies in acutely ill patients, we took adequate safety precautions as described below in order to control possible unpredictable reactions.

The aim of the quasi-experimental study (Montero and León, 2005) was to investigate the possible influence of a humor-centered activity led by professional clowns on disruptive behaviors shown by patients hospitalized in the Psychiatric Service of the Virgen de las Nieves University Hospital in Granada (southern Spain).

Method

Setting and participants

The Virgen de las Nieves University Hospital (VNUH) in Granada (autonomous region of Andalusia, southern Spain) is a third-level, 1237-bed care facility (including a 29-bed inpatient psychiatric ward) that serves a population of 286 935 inhabitants.

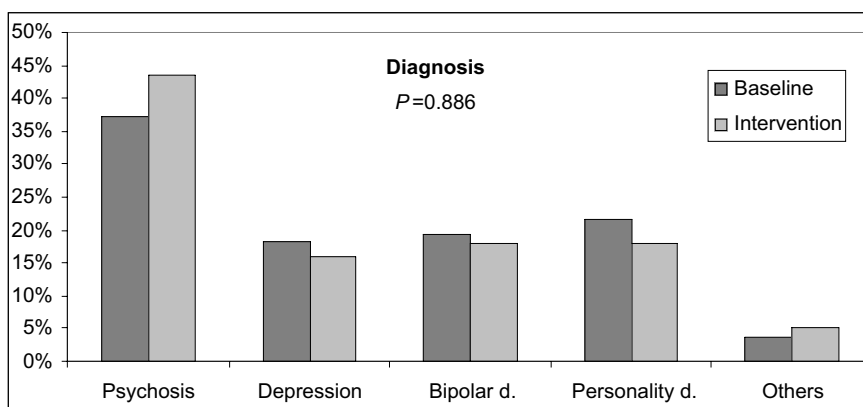
The psychiatry department provides brief hospital stays for patients with acute psychiatric illness referred from different mental health care centers serving a total population of 286 935 inhabitants. Almost all patients who require hospitalization care are referred to the VNUH on the basis of strict population-based quotas for community psychiatric care, and also because of the lack of private inpatient psychiatric facilities serving the same population.

The sample consisted of patients hospitalized in the psychiatric ward of the VNUH during two 83-day periods. The two populations described in Table 1 can be considered homogeneous, as we found no statistically significant differences between them in duration of stay (days), age, sex or diagnostic group (Figure 1). After the study was described in detail, written informed consent was obtained from each patient or his or her legal guardian. The study was approved by the hospital’s ethics committee.

TABLE 1. Descriptive statistics for the sample of patients hospitalized on a psychiatric ward of a general hospital in Granada, Spain, during the baseline and intervention periods.

	<i>Baseline period</i>	<i>Intervention period</i>	<i>Significance</i>
Number of patients	83	101	ns
Mean length of stay (days)	20.37 ±15.01	18.42 ±17.56	ns
Gender (M/F)	60.2 / 39.8	55.4 / 44.6	ns
Age (years)	41.02 ±15.01	42.96 ± 10.03	ns

FIGURE 1. Distribution of patients hospitalized on a psychiatric ward of a general hospital in southern Spain in different diagnostic groups.



Procedures

A checklist of 10 types of behavior considered disruptive was prepared before the study (Figure 2), and was completed by the nurse responsible for each shift (morning, afternoon, and night). The checklist was provided with no mention of the study under way, to avoid any association between the number of DB and the humor-based activity that was to be used later. The attention of the nursing staff was drawn instead to the measures to be taken when DB appeared, and to the subjective assessment of their shifts.

FIGURE 2. Incidence card designed to record disruptive behaviors during the study.

Date:		Score the shift as:
Shift:	Morning - Afternoon - Night	1- Very good
Nurse's name:		2- Good
		3- Fair
		4- Bad
Number of admissions:		5- Verv bad
INCIDENTS		MEASURES TAKEN
<ol style="list-style-type: none"> 1. Refusing to cooperate 2. Shouting 3. Trying to escape 4. Escaping 5. Breaking objects 6. Self-injury 7. Fighting 8. Agitation 9. Aggression toward self 10. Aggression toward staff 		<ol style="list-style-type: none"> A. Handled by nursing staff B. Physician on call notified C. Unscheduled use of medication D. Security agent notified E. Mechanical restraint used

In a setting physically removed from the ward, a group of three clowns were trained for their role in the study. These professionals were members of a hospital clown group and had experience working with children hospitalized in the pediatrics department. They participated in workshops on general concepts of the most frequent illnesses seen in the psychiatric service, and on the most characteristic behaviors and forms of interpersonal contact typical of these disorders. Theoretical training lasted one week (4 h per day) and took place at a location other than the psychiatric ward. Our aims were to provide the actors with general notions about a population (psychiatric patients) that differed from children (their usual audience), to obviate some common assumptions regarding the risks involved in working with patients with psychiatric disorders, and to explain some of the limitations the actors were likely to encounter in patients with certain disorders. We also drew their attention to some medication-induced interferences they were likely to observe.

The study was carried out in two 83-day periods. The baseline period lasted from 16 January 2002 to 8 April 2002, and the activity (intervention) period lasted from 9

April to 30 June of the same year. These periods were chosen to avoid Christmas and summer vacations, during which regular nursing and medical staff members are often absent and are replaced by substitute staff. During the baseline period the incidence of DB was recorded on the nursing checklist, but no humor-based intervention was used. During the activity period two weekly 90-min sessions with clowns were held on Tuesday and Thursday afternoons from 18.00 to 19.30. This schedule was chosen to coincide with family visiting hours (from 17.00 to 20.00 daily).

The clown activity was held in the TV room, which was cleared of furniture to create an open space. Because of its central location in the psychiatric ward, and because its doors are left open at all times, noises from the session were heard throughout the ward. Hidden video cameras were installed in the ceiling to tape the sessions. An announcement on the ward bulletin board advertised the dates and times of the sessions and invited patients to take part. At the start of each session an announcement was made that the session would be taped for supervisory and research purposes, and all those present were offered to opportunity to take part or decline freely. Disruptive behaviors were recorded during the activity period in the same way as during the baseline period.

Each session was attended by two actors and a resident (who acted as an observer), and by the shift's regular nursing staff, who entered and left the room as time and other duties allowed. All persons were free to join or leave any of the sessions at any time. Each session began with warm-up exercises (marching in different directions in time to a set rhythm, stretching and dancing), followed by group activities led by the clowns, and consisting of games, psychomotor expression exercises, activities based on imaginary situations (imitation in front of a mirror, charades, playing with an imaginary ball, visits to an imaginary planet with zero gravity, games based on invisibility, games based on curiosity). Humor was an element in all activities, which took place in a setting of controlled tolerance. At the end of the session, quieter games were usually played to lower the level of excitement.

Sessions were observed by two of the authors who were ready to intervene if necessary. Both observers were psychiatry residents who took part in the study; one was located in the TV room and participated in the activities, and the other was in the recording room where the sessions were observed on a monitor as they were taped on DVD for later analysis. These recordings will be described in a future report that will analyze the types of activity that had the greatest influence on different disorders. Intervention by the observers was not necessary at any time in any of the clown sessions, as no incidents occurred which the actors were not able to control.

Data recording

The global analysis of the effect of the clown activity on DB was based on the following indicators: inpatient-days, i.e., the number of days of hospitalization, and inpatient-shifts, i.e., the number of patients in the hospital during all nursing shifts for the whole study period. The latter was calculated by multiplying the number of inpatient-

days by 3, assuming that each stay of one day comprised all three nursing shifts. The percent specific disruption index (SDI) was calculated for each DB in each period by dividing the sum of all episodes of DB by the sum of all patient-shifts for that period, and then multiplying the quotient by 100. The percent global disruption index (GDI) was calculated for all DB in each of the two periods by dividing the sum of all episodes of DB in a given period by the sum of patient-shifts in that period, and then multiplying the quotient by 100.

Because these indices represented proportions, they should be considered to reflect the likelihood that a patient will display a given DB during a given shift (SDI), or the likelihood that a patient will display any DB during his or her hospital stay (GDI). The present analysis was based on only one DB (the one considered the most serious) per each patient and per shift, since nursing staff members were instructed to record only the most serious DB regardless of how many might have occurred.

Data analysis

Mean values were calculated for age and length of stay (in days), and percentage values were calculated for sex and diagnostic group. Student's *t* test was used to identify significant differences between means, and the chi-squared test was used to compare percentages. Fisher's exact test was used to compare the results for GDI in the two periods. When the results were significant for a given DB, its SDI for the two periods were compared with the same procedure. Because of the number of comparisons ($n=10$), the *P* values were penalized with the Bonferroni correction. All analyses were done with the Statistical Package for Social Sciences (SPSS, v. 10.0).

This investigation is a quasi-experimental study (Montero and Leon, 2005), and the current paper followed the guidelines proposed by Bobenrieth (2002), and Ramos-Alvarez and Catena (2004).

Results

During the baseline period 83 patients were admitted, resulting in a total of 1666 inpatient days and 4998 inpatient-shifts. During the activity period there were 101 admissions, resulting in 1916 inpatient days and 5748 inpatient-shifts. The total number of DB was 293 during the baseline period and 220 during the clown activity period. Table 2 shows the numbers of DB in both periods, and the global disruption index (GDI) and specific disruption index (SDI) for each behavior.

TABLE 2. Episodes of disruptive behavior and disruption indexes for baseline and intervention periods.

<i>Disruptive behaviors</i>	<i>Baseline period</i>		<i>Intervention period</i>		<i>Comparison</i>		
	N1	DI1	N2	DI2	DI2-DI1	A. P	Bonf. P
Refusing to cooperate	180	3.60%	168	2.92%	-0.68%	0.042	0.42
Shouting	6	0.12%	12	0.21%	0.09%	0.345	1
Trying to escape	18	0.36%	1	0.02%	-0.34%	<0.001	<0.01
Escaping	2	0.04%	3	0.05%	0.01%	1	1
Breaking objects	4	0.08%	2	0.03%	-0.05%	0.426	1
Self-injury	8	0.16%	0	0.00%	-0.16%	0.002	0.02
Fighting	26	0.52%	7	0.12%	-0.40%	<0.001	<0.01
Agitation	24	0.48%	12	0.21%	-0.27%	0.018	0.18
Aggression towards staff	25	0.50%	13	0.23%	-0.27%	0.021	0.21
Aggression towards relative	0	0.00%	2	0.03%	0.03%	0.502	1
Total behaviors	293	5.86%	220	3.83%	-2.03%	<0.001	<0.001
Admissions	83		101				
Inpatient-days	1666		1916				
Inpatient-shifts	4998		5748				

NX: Number of episodes of disruptive behavior during each period.
 DIX: Disruptive index for each period.
 P: Uncorrected P value. Bonf P: P value after Bonferroni correction.

The incidence of six of the DB decreased significantly during the clown activity period. After Bonferroni correction the reduction remained statistically significant for attempted escapes, self-injury and fighting.

Discussion

An often-expressed affirmation is that humor contributes to better physical and psychological health, although empirical support for this proposal is no very strong (Kuiper, Grimshaw, Leite and Kirsh, 2004; Kuiper and Nicholl, 2004). However, although different therapeutic strategies have been used throughout history to care for persons with mental illness, the use of humor as a tool in therapy for severely ill patients has rarely been reported. Different studies have analyzed the effect of humor-related activities in different contexts (Kerckänen, Kuiper, and Martin, 2004; Scholl and Ragan, 2003). Although humor has been handled from different perspectives, studies of the effect of what has come to be called clown therapy have received increasing attention, as have attempts to integrate humor as one among a number of substantive elements of therapy (Campbell, 1997; Dziegielewski, 2004; Dziegielewski *et al.*, 2003). It is occasionally

more complicated to isolate the active effect of humor from the effects of other components (Martin, 2001). In fact, the activities that clowns use in the course of their professional interventions involve characteristics such as moderate physical exercise, games, and relaxation, in addition to facilitating responses to humor. Although separating the action of each component is a task that must await future studies, clown-based activities within a hospital setting show a positive relation with a number of health factors (Schwekbe and Gryski, 2003). The results of the present study in a sample of psychiatric patients can be viewed within the framework of the “therapeutic clown” approach, specifically within the area of analysis of the effect of clown activities on the behaviors of persons that form part of a particular environment. In this sense, the data we provide here support the use of clown activities as an instrument for change and modulation of the therapeutic milieu.

When we undertook this study we felt that the activity designed for the intervention period might be an element that introduced improvements in the environment of the psychiatric ward of our general hospital, and that it might favor the decrease in DB. At the conclusion of our study we found a significant reduction in the overall occurrence of DB (as reflected in the GDI), despite the increase in the number of inpatients during the intervention period. The activities carried out by the ward clowns therefore seem to have had a beneficial effect even though they performed only two days a week.

We also feel that a humor-based activity can be implemented with actors who, although professionals, have no direct experience in health care but who nonetheless care about health issues and are therefore highly motivated to work with these patients and sensitive to their problems. Training the actors for work with Training so that the actors could work effectively with this specific population of patients was kept brief to encourage the fundamental characteristics of spontaneity and reliance on common sense. Although the safety measures we foresaw were not needed during the study, we nonetheless consider them advisable since the activities induce uninhibited behaviors that might lead to situations difficult to control.

When we compared different DB between the two periods, we noted that the two that became more frequent during the activity period were those at the lower end of the seriousness hierarchy: refusal to cooperate and shouting. In a sense these behaviors share a common factor, i.e., moderate disinhibition. In contrast, during the baseline period there were significantly more attempted escapes, self-injuries and fights, which may reflect greater dissatisfaction with hospitalization and a greater degree aggressiveness toward the self and toward others. These interpretations remain unproven, and will require studies designed specifically to search for evidence of a relationship between humor and the behavioral modifications we observed.

In addition to the results reported here, we received expressions of gratitude from patients and relatives during the activity period. It is our hope that this will help to convince health care managers of the potential benefits of a permanent program of humor-based activities.

In closing, we believe this experience suggests new areas of research at a time when most attention seems to be focussed on pharmacological methods for the treatment and control of mental disorders (Dziegielewski, 2004).

References

- Astedt, P. and Liukkonen, A. (1994). Humor in Nursing-Care. *Journal of Advance Nursing*, 20, 183-188.
- Bellert, J.L. (1989). Humor: A Therapeutic Approach in Oncology Nursing. *Cancer Nursing*, 12, 65-70.
- Berk, L.S., Stanley, A., and Tan, W. (1989). Neuroendocrine and stress hormone changes during mirthful laughter. *American Journal of Medicine Science*, 298, 390-396.
- Bobenrieth, M. (2002). Normas para la revisión de artículos originales en Ciencias de la Salud. *Revista Internacional de Psicología Clínica y de la Salud/International Journal of Clinical and Health Psychology*, 2, 509-523.
- Boyle, G.J. and Joss-Reid, J.M. (2004). Relationship of humour to health: A psychometric investigation. *British Journal of Health Psychology*, 1, 51-66.
- Campbell, A.J. (1997). Using humor in medical practice. *Missouri Medicine*, 94, 603-618.
- Cann, A., Holt, K., and Calhoun, L.G. (1999). The roles of humor and sense of humor in response to stressors. *Humor: International Journal of Humor Research*, 12, 177-193.
- Cohn-Jones, R.D. (2000). Clowning as a therapeutic intervention in hospital and nursing home settings: A proposed caring clown training program. *Dissertation Abstracts International: Section B: The Sciences & Engineering*, 61(2-B), 1074.
- Dziegielewski, S.F. (2004). *The changing face of health care social work: Professional practice in the era of behaviorally based care*. New York: Springer.
- Dziegielewski, S.F. Jacinto, G.A., Laudadio, A., and Legg-Rodriguez, L. (2003). Humor: An essential communication tool in therapy. *International Journal of Mental Health*, 32, 74-90.
- Erdman, L. (1993). Laughter Therapy for Patients with Cancer. *Journal of Psychosocial Oncology*, 11, 55-67
- Fry, W.F. (1992). The Physiologic Effects of Humor, Mirth and Laughter. *Journal of American Medicine Association*, 267, 1857-1858.
- Gelkopf, M.A., Kreitler, S., and Sigal, M. (1993). Laughter in a Psychiatric Ward. Somatic, Emotional, Social and Clinical Influences on Schizophrenic Patients. *Journal of Nervous and Mental Disease*, 181, 283-289.
- Gelkopf, M., Sigal, M., and Kramer, R. (1994). Therapeutic use of humor to improve social support in an institutionalized schizophrenic inpatient community. *Journal of Social Psychology*, 134, 175-182.
- Greenvald, H.M. (1990). Humor in Psychotherapy. *Journal of Contemporary Psychotherapy*, 7, 113-116.
- Harrison, N. (1995). Using Humour as an Educational Technique. *Professional Nursing*, 11, 198-199.
- Higueras, A. (1993). Características de la población asistida en una Unidad de Psiquiatría de un Hospital General. *Folia Neuropsiquiátrica*, 27, 57-65.
- Hunt, A.H. (1993). Humor as a Nursing Intervention. *Cancer Nursing*, 16, 34-39.
- Kamei, T., Kumano, T., and Masumura, S. (1997). Changes of Immunoregulatory Cells Associated with Physiological Stress and Humor. *Perceptual and Motor Skills*, 32, 196-198
- Kerkkänen, P., Kuiper, N.A., and Martin, R.A. (2004). Sense of humor, physical health and well-being at work: A three-year longitudinal study of Finnish police officers. *Humor: International Journal of Humor Research*, 17, 21-35.
- Kuiper, N.A., Grimshaw, M., Leite, C., and Kirsh, G. (2004). Humor is not always the best medicine: Specific components of sense of humor and psychological well-being. *Humor: International Journal of Humor Research*, 17, 135-168.

- Kuiper, N.A. and Nicholl, S. (2004). Thoughts of feeling better? Sense of humor and physical health. *Humor: International Journal of Humor Research*, 17, 37-66.
- Leise, C.M. (1993). The correlation between humor and chronic pain of Arthritis. *Journal of Holistic Nursing*, 11, 82-95.
- Mallet, J. (1993). The use of Humour and Laughter in Patient Care. *British Journal of Nursing*, 2, 172-175.
- Martin, R.A. (2001). Humor, laughter and physical health: Methodological issues and research findings. *Psychological Bulletin*, 127, 504-519.
- McGhee, P.E. (1999). *Health, healing, and the amuse system: Humor as survival training* (3^a ed.). Dubuque, IA: Kendall/Hunt.
- Montero, I. and León, O.G. (2005). Sistema de clasificación del método en los informes de investigación en Psicología. *International Journal of Clinical and Health Psychology*, 5, 115-127.
- Nezu, A.M., Nezu, C.M., and Blisset, S.E. (1988). Sense of humor as a moderator of the relation between stressful events and psychological distress: A prospective analysis. *Journal of Personality & Social Psychology*, 54, 520-525.
- Ramos-Alvarez, M.M. and Catena, A. (2004). Normas para la elaboración y revisión de artículos originales experimentales en Ciencias del Comportamiento. *International Journal of Clinical and Health Psychology*, 4, 173-189.
- Scholl, J.C. and Ragan, S.L. (2003). The use of humor in promoting positive provider-patient interactions in a hospital rehabilitation. *Health Communication*, 15, 319-330.
- Schwekbe S. and Gryski, C. (2003). Gravity and levity pain and play: The child and the clown in the pediatric health care setting. In S. Klein (Ed.), *Humor in children's lives: A guidebook for practitioners* (pp. 49-68). Westport, CT: Praeger.
- Yovetich, N., Dale A., and Hudak A. (1990). Benefits of humor in reduction of threat-induced anxiety. *Psychological Reports*, 66, 55-59.