

PET-FACILITATED THERAPY AS AN ADJUNCT REHABILITATION PROGRAM FOR PEOPLE WITH A DIAGNOSIS OF CHRONIC SCHIZOPHRENIA

Victoria Villalta Gil y Susana Ochoa Güerre

Fundación para la investigación y la docencia Sant Joan de Déu. Unidad de Investigación

Coincidiendo con el surgimiento de la psiquiatría comunitaria, ha habido un progresivo proceso de desinstitucionalización de los pacientes psiquiátricos; seleccionando a los menos discapacitados para los recursos comunitarios y dejando los pacientes con más discapacidad al cuidado de las instituciones. La rehabilitación pretende afrontar la discapacidad para realizar actividades, con la finalidad de mejorar la desventaja social consecuencia del deterioro e incapacidad producidos por la enfermedad.

La Terapia Facilitada por Animales, se describe como una intervención diseñada para mejorar el funcionamiento cognitivo, físico o social de un paciente, con unos objetivos específicos delimitados en el tiempo. Los estudios realizados hasta el momento apuntan a resultados positivos de este tipo de intervención. En el presente trabajo se pretende describir cómo la Terapia Facilitada por Animales puede ser un programa de rehabilitación terapéutico efectivo adjunto al tratamiento normal que cubra con las necesidades de los pacientes crónicos con diagnóstico de esquizofrenia institucionalizados.

Palabras Clave: terapia por animales, esquizofrenia, rehabilitación.

Schizophrenia runs a course that usually leads to high degrees of disability. During the past few years and coinciding with the advent of community psychiatry there has been a progressive deinstitutionalization process. Less disabled patients have been selected for the new community mental health services while severe patients have remained under institutionalized care. Rehabilitation aims to cope with the reduction in the ability to undertake different activities in order to improve social disadvantage due to the disability caused by the disorder.

Animal-Facilitated Therapy (AFT) is described as an intervention designed to improve cognitive, physical and social functioning of a patient, with some determined, time-delimited objectives. Studies done until now with different populations suggest that this kind of intervention could have positive results. The present paper aims to describe how AFT could be an effective therapeutic rehabilitation program adjunct to regular treatment for institutionalized patients with schizophrenia.

Key Words: animal-facilitated therapy, schizophrenia, rehabilitation.

Rehabilitation attempts to confront the decrease in the capacity to undertake activities with the aim of improving social disadvantage due to the deterioration and the incapacity produced by the disorder (Collins & Munroe-Blum, 1995). Rehabilitation is based on the fact that the socio-environmental dimension of the mental disorder is as important as the biological dimension and that the supervision of chronic disabilities is as important as the treatment of symptoms and therefore, it is proposed as a long-term intervention focused on the factors of everyday life that affect social adaptation without ignoring the symptoms they are experiencing (Sheperd, 1996).

The problems that a person with a severe mental disorder has pertain to "social access" and this depends on the provision of social supports that can facilitate this access and help maintain the person in his social position. The long-term maintenance of their social access depends on the stability of these social supports and on the rehabilitation services that have to consistently supervise and readjust their interventions in an appropriate manner (Sheperd, 1996). This is more difficult in an institutionalized context in which social access is low.

In the institutionalized setting, rehabilitation has been structured as another hospital service with the objective of decreasing the incapacity generated by institutionalized life although with no reference to a social context and therefore to the participation of the patient in a social network. The facilitation of "social access" on the part of the rehabilitation team allows us to appreciate how part

Correspondence: Victoria Villalta Gil. Fundación Sant Joan de Déu. Unidad de Investigación. Sant Joan de Déu - Serveis de Salut Mental. C/ Dr. Antoni Pujadas 42. 08830 Sant Boi de Llobregat. Barcelona. Spain. E-mail: vvillalta@sjd-ssm.com

of the rehabilitation process also requires active participation in the community (Aparicio, 1996).

In the last few years and coinciding with the emergence of Community Psychiatry there has been a progressive process of deinstitutionalization of psychiatric patients. This way, the least disabled have been selected for the new community resources leaving behind the most severe cases in more institutionalized hospital resources. In some cases this process of deinstitutionalization has generated a group of patients with a poor social network and great incapacity who often relapse and are hospitalized on repeated occasions and who are at a great social disadvantage, a phenomenon known as "the revolving door patient" (Folsom et al., 2005; Trieman & Leff, 1996). It has been said that institutionalized patients consider their quality of life to be worse than that of community patients, do not improve their everyday life skills and their social network becomes minimal (Leff, Trieman & Gooch, 1996). In addition, if the patient's stay is long, then what has been denominated "deculturization" can happen, that is, a lack of training that temporally incapacitates him for coping with certain aspects of life in the exterior, and also there is a loss of the previously learnt social roles (Goffman, 1970).

The severely mentally ill who are more present in psychiatric institutions are those diagnosed with schizophrenia. This disorder has very heterogeneous clinical manifestations and an evolution that will lead to high degrees of disability in diverse areas (Meise & Fleischacker, 1996). The fact that this is a group of institutionalized patients makes training in social skills and social functioning difficult since, as we have previously explained, their "social access" is limited.

In the present work we intend to describe how Animal-Facilitated Therapy can be an effective therapeutic rehabilitation program adjunct to regular treatment that covers the needs of institutionalized chronic patients with a schizophrenia diagnosis.

ANIMAL-FACILITATED THERAPY (AFT): FACILITATOR OF COGNITIVE AND SOCIAL REHABILITATION

The presence of animals in therapeutic fields goes back centuries, although in the first decades of the XX century, with the arrival of scientific medicine, animals were eliminated from hospital environments (Serpell, 2003). The active participation and the consideration of animals in the therapeutic process is relatively novel; it was Levinson, a child psychologist, who by serendipity

observed how the presence of his dog Jingles in the session facilitated interaction with a child who had difficulties of interaction with the therapist himself (Levinson, 1962); subsequently he used this finding to introduce Jingles in therapeutic sessions facilitating the interaction and expression of children (Brodie & Biley, 1999). Levinson is considered the father of the current AFT. However, previously Bossard (1950) had already manifested that "pets are an essential part of family life; they should be considered a basic factor of mental hygiene".

AFT, or Animal-Facilitated Therapy, is described as an intervention designed to improve the cognitive, physical or social functioning of a patient, with specific time-delimited objectives. The interaction between the animal and the patient is generally one to one. The animals used in AFT are usually specially trained animals and are not the animals of the actual patient (Connor & Miller, 2000).

Mallon et al. (2003), describe some principles they have identified after a long experience with AFT at Green Chimneys; a temporal residence for children and adolescents where they have been using the curative component of the animal-person interaction for more than 50 years. Mallon starts from the premise that AFT programs must be protocolled, designed according to the individual characteristics of each patient and attached to the normal treatment of these. The therapeutic objective must be directed at improving the social skills, the autonomy and the emotional responses of individuals. In addition, he holds that the participation of patients in a program of these characteristics must be voluntary and consented, as well as maintaining that the therapist must watch out for the security of the patient and that of the other professionals who are linked to the application of the program. These principles, despite being formulated by a working team in a residence for children and adolescents, are transferable to any institutionalized population.

AFT is supported by the "animal-person" bond developed along the evolutionary process of human beings and domestic animals. The relationship between human beings and domestic animals (in the case of the dog) goes back, at least, 12000 years; in the north of Israel they found a tomb with some fossil remains of a human with his hand resting on the fossil remains of a dog. Experts indicated that a burial of these characteristics emphasizes the link that person had with his pet. Anyhow, molecular genetics studies on domestic



dogs suggest that this link goes back much farther (Vila, Seddon & Ellegren, 2005). This is not an altruistic bond: while in the beginning animals provided food, protection, transport, etc...their usefulness has been transformed into a sort of mutual dependency; in recent years there has been an increasing interest to know the origin of this dependency, that is, what are the physical and emotional benefits that domestic animals provide us with in the present (Manchon & Tomé, 1997a) and it has been observed that the benefits are quite considerable. For example, Kidd & Kidd (1994) studied the benefits of having pets for homeless people, coming to the conclusion that those animals were the only relationship that they had with another living being; however, they did not use any measures which allowed them to conclude that this fact gave them any advantage over homeless people without pets. In a study by Allen et al. (2002; 1991) they observed that pet owners' response threshold to stressful situations was higher than that of those who did not own pets; furthermore they observed that in the presence of familiar people that threshold decreased. These results indicate that the presence of other people makes the perception of the situation more stressful than when they are in the presence of pets since the presence of the latter reduced the levels of cardiovascular reactivity when confronted with tasks. Other studies have also found that arterial pressure was significantly reduced after being in contact with domestic animals (Stasi et al., 2004). Not only were there changes in the arterial pressure but also the levels of neurotransmitters in plasma varied significantly ($p < 0.01$) after the interaction with a companion animal (Odendaal & Meintjes, 2003). Poresky & Hendrix (1990) concluded that having domestic animals on the part of children was highly associated to a good social development that affects the social competence, empathy and cooperation of children. Another study (Siegel, 1990) concluded that older people who had companion animals made fewer visits to family doctors than those who were not animal owners.

In conclusion, there seems to be evidence that indeed suggests that there are some benefits secondary to the bond established throughout our evolution between people and animals. These benefits have been the base for the utilization of domestic animals as therapeutic allies.

Since Levinson's discovery there have been studies done that try to quantify the benefits of using the animal-person bond in a therapeutic environment. Even though there are

not many of great methodological rigor, those done up to now seem to suggest that AFT is beneficial for different symptoms and different illnesses, in different populations. The AFT programs have been applied mainly with:

- a) People (especially children) with physical and/or psychiatric disability: Nathanson and de Faria (1993) implemented an AFT program with Dolphins in children with mental retardation; although the sample was small they found a tendency to the improvement of cognitive functioning (communicative capacity and attention). There have also been AFT programs with horses with very good results for physical rehabilitation (Potter, Evans & Nolt, Jr., 1994; Cusack, 1991). Companion animals, especially assistance dogs, have been used with the main objective of facilitating the mobility of physically disabled children; but a study by the Mader group (1989) concluded that the company of an assistance dog facilitated the proximity of non-disabled people to disabled children ($p < 0.01$); furthermore, children accompanied by assistance dogs received more positive contacts ($p < 0.01$) than children who went alone. These results helped them to conclude that the presence of an assistance dog is a social facilitator and increases social acceptance. There is the experience of the Rosella Residence in Cataluña, where they introduced companion animals as a therapeutic complement in the treatment of mental deficiency. This experience was very positively valued by the team and, especially, by the users (Sanmartí, 1992).
- b) In old age: There have been AFT programs implemented in residences for the elderly. Some professionals have evaluated the benefits of the implementation of a program of these characteristics in these institutions. Among these we find the Banks & Banks group (2002) that studied if the residents' feeling of loneliness was improved after the application of an AFT program. Even though it was found that the residents who had participated in a program of these characteristics significantly improved ($p < 0.001$) their feeling of loneliness compared to a control group who had not participated, we have to emphasize that they do not indicate if this group received any other type of intervention different from AFT that can make us affirm that AFT, more than other interventions, is more effective in reducing the feeling of loneliness in older residents. Another study points out that the implementation of an AFT program in the elderly has resulted in the tendency to



improve depressive symptoms and in a decrease in arterial pressure (Stasi et al., 2004).

- c) People with chronic mental disorders: In the same manner as some professionals have been interested in evaluating the positive effects of the implementation of AFT programs with older people, some professionals in the mental health field have also applied and evaluated such programs, especially in people with the diagnosis of schizophrenia residing in a psychiatric institution. Of all these studies we can emphasize the one done by Barak's team (2001). They carried out a study that evaluated the effects of an AFT program in geriatric patients diagnosed with schizophrenia who resided in a long-term care unit for a year. They randomly chose a sample which was evaluated using a scale which measures social-interpersonal functioning, instrumental and self-care skills and self-control. The greatest change was that related to social-interpersonal functioning with a very significant improvement ($p < 0.01$), there was a noticeable tendency to improve instrumental skills and there was no change in self-control. This study is especially interesting because they compared the AFT intervention group with a control group that received an intervention that was different from AFT, therefore, the results are controlled for the effect of activity and the passage of time. Later, Nathans-Barel et al. (2005) found a significant improvement in the hedonic tone ($p = 0.02$) of 20 long-term patients who had chronic schizophrenia after the application of an AFT program; they also perceived that their quality of life related to leisure was significantly better ($p = 0.01$). This study did not have a control group so they could not control for possible changes in the evaluation scales due to the passage of time. Kovács et al. (2004), introduced an AFT program in a long-term care unit for middle-aged patients diagnosed with schizophrenia with the objective of facilitating social functioning adapted to community needs. They evaluated everyday skills before and after the implementation of the AFT program and they found a significant improvement in domestic activities ($p = 0.01$) and of self-care ($p = 0.02$); they also observed a tendency to improve the rest of everyday life activities. Mayol-Pou (2002), proposed that an AFT program would decrease the psychotic symptomatology of a group of chronic institutionalized patients. After the implementation of the program they found that the negative symptomatology of the pa-

tients evaluated by the Positive and Negative Syndrome Scale (PANSS) (Kay, Fiszbein & Opler, 1987; Peralta, 1994) improved ($p = 0.005$) after the application of an AFT program. Another study found that the levels of anxiety in patients with a diagnosis of psychotic disorder who had received an AFT program decreased significantly ($p < 0.01$) compared to a group of patients who received emotional support (Barker & Dawson, 1998). We have to point out that all these studies done with persons diagnosed with schizophrenia have not used very large samples but a fact that stands out is the high compliance and bonding with AFT on the part of the patients.

- d) Other mental disorders: AFT has been positively valued when introduced in the treatment of post-traumatic stress disorder, especially with people who do not respond to other types of treatments and who have a tendency to actively isolate themselves (Altschuler, 1999).
- e) Prisoners: AFT programs have been introduced in reformatories with the objective of teaching inmates new skills with relation to animal care as well as to link them to new responsibilities and controlled activities (Cooper, 1992).

RISKS OF AFT

The effectiveness of the application of any intervention has to be assessed with an end to being able to measure the real benefits of such an application. At the same time, we cannot fail to assess the possible adverse effects of any therapeutic intervention. A number of possible risks related to the application of an AFT program have been identified, among these we find:

- 1) The risk of contraction of diseases (zootic diseases)
 - 2) Risk that the patients could be bitten or scratched
 - 3) Sanitary problems related to animal hygiene
 - 4) Patient adverse reactions when exposed to the animals
 - 5) Feelings of loss in the case of death of the animal or separation from it
 - 6) Maintenance costs or of animal utilization
- Aside from the risks previously established already explored in the bibliography (Manchon et al., 1997a; Brodie, Biley & Shewring, 2002), in a work carried out for the licenciatura (degree credential) with 46 health professionals (Manchon & Tomé, 1997b), these were suggested as negative effects:
- 7) Risk of not adopting the appropriate animal
 - 8) Risk that the patient may not know what to expect from the animal



9) Risk of forcing animal-patient situations since this is a "trial" therapy

10) Inadequacy of the character or type of animal to the needs which could imply a negative experience.

These negative effects have been resolved in the following ways:

a) Regarding points 1, 2 and 3: Hygiene protocols for dogs have been established. In addition, all dogs used in therapy follow the current policy regarding companion animals. Anyhow, the probability of contracting a disease transmitted by a companion animal correctly controlled by a veterinarian is very small (Brodie et al., 2002; Guay, 2001).

b) Regarding points 2, 7 and 10: Animals for therapy are carefully trained and follow behaviour standards established by organizations that regulate AFT (Brodie et al., 2002).

c) Regarding point 4: Questionnaires are administered to detect subjects' adverse attitudes towards the therapist-animals, which are an exclusion criterion for studies; aside from attitudes it is also evaluated if the patient has any allergies provoked by contact with animals (Banks et al., 2002).

d) Regarding point 8: This is not an effect that is found in the literature but professionals consider it important. We believe that with the information that is given before enrolling in a study or a treatment, the patient can adjust his expectations to the possible benefits he will have after the implementation of the program.

e) Regarding point 9: With the legislation that regulates the voluntary participation in studies and/or treatments, there will be no need to force situations in which the patients or tutors do not want to participate.

f) Regarding point 6: There are no studies on cost-effectiveness done to date with respect to AFT.

g) Regarding point 5: This point has to be considered seriously since the process following the death of a pet is a mourning process that can have serious repercussions for the owner. AFT is based on the human-animal bond and it is this bond precisely which makes the process following the loss of an animal that of mourning (Podberscek & Blackshaw, 1994). Despite not being the aim of AFT, the fact of participating in a mourning process due to the death of or separation from an animal, allows for training in real situations in a protected environment with therapists who will guide the process.

IMPLEMENTATION OF AN AFT PROGRAM IN PEOPLE RESIDING IN A LONG-TERM CARE UNIT WITH THE DIAGNOSIS OF CHRONIC SCHIZOPHRENIA

As we have said before, patients with chronic schizophrenia have low levels of activity and social functioning and also show reduced strategies for the resolution of social problems. When we compare institutionalized patients with schizophrenia with community patients we find that the former show a greater and more progressive disability (Kovacs et al., 2004).

To date, the negative symptomatology, characterized by the slowing-down of thought, flat affect and social withdrawal (Crow, 1985), has not been successfully reduced by neuroleptic medication. This set of negative symptoms is the one more associated to the long evolution of the disorder, with cognitive dysfunction and the disability of the individual (Penades, Gasto, Boget, Catalan & Salamero, 2001; Grawe & Levander, 2001; Liddle, 2000; Hammer, Katsanis & Iacono, 1995).

Since the challenge of rehabilitation is to creatively develop long-term supports that will promote social functioning which help accept the possible existence of incurable difficulties and how to maintain them effectively (Shepherd, 1996), we believe that the implementation of an AFT program, as a complement to traditional therapy and not as a self-sufficient and exclusive therapy, could be beneficial for people with a chronic mental illness residing in a long-term care unit, since:

a) It acts on negative symptomatology reducing its severity (Mayol-Pou, 2002; Nathans-Barel et al., 2005). As we have commented previously the negative symptomatology is associated to a long evolution of the disorder and to greater disability. AFT also appears to be especially effective as a social catalyser (Brodie et al., 1999; Mader et al., 1989); people with chronic schizophrenia who live in the community already seem to have social withdrawal that becomes accentuated in institutionalized patients due to the lack of social access.

b) The results obtained to date indicate that cognitive rehabilitation exercises that are performed in the presence of an animal have better results than those that do not have the presence of the animal added (Nathanson et al., 1993). Many individuals with chronic schizophrenia show cognitive dysfunction (Penades et al., 2001). In addition, bad cognitive functioning has been related to bad social function-



- ing (Green, 1996; Addington & Addington, 1999).
- c) AFT generates normalized, organized, supervised and regulated activities, compatible with everyday life activities; it could be training and a model for everyday activities for residents. The measure of skills and supports, more than the psychiatric diagnosis and the symptomatic patterns that are particular of each individual with a severe mental illness, determines the proper functioning of a person in the community. The interventions for the improvement of skills and supports can help people with chronic mental illness to function more successfully in the community (Farkas, 1996).
 - d) It reduces feelings of loneliness and the discomfort of residents (Banks et al., 2002).
 - e) The literature shows that the bond of people with a diagnosis of schizophrenia who participated in an AFT program is very high (Kovacs et al., 2004; Barker et al., 1998; Barak et al., 2001), which allows us to treat different aspects with the patients due to their high motivation for treatment.
 - f) The presence of animals reduces anxiety levels (Barker et al., 1998; Allen et al., 2002; Allen et al., 1991; Odendaal et al., 2003). Due to the fact that the vulnerability of these patients is very high, the presence of animals in the therapeutic process would reduce the anxiety levels for any given task.

Although the experiences where AFT has been applied have been carried out in very different populations and small samples and the efficacy studies are very scarce, the possible benefits of this type of intervention seem to cover the therapeutic needs of patients with a diagnosis of chronic schizophrenia mainly with negative symptomatology and institutionalization, and seems to be a good support therapy for regular treatment protocols.

CONCLUSIONS

Even though AFT has not been widely demonstrated to be effective, it seems that there are indications that lead us to consider that it could be an adjunct treatment to the rehabilitation programs that are carried out in institutions where people with a diagnosis of schizophrenia reside with a long evolution of the disorder. The benefits of these types of rehabilitation programs are still not determined with methodologically correct studies but the studies that have been carried out up to this moment seem to indicate that it could be beneficial for social-interpersonal functioning (Barak et al., 2001), hedonic tone (Nathans-Barel et al., 2005), certain everyday life skills (Kovacs et

al., 2004) and even psychotic symptomatology (Mayol-Pou, 2002). What is really interesting for us is the high compliance and link with AFT on the part of the patients. This leads us to think that the novelty of introducing companion animals in regular treatment makes this type of intervention suitable to fixate patients' attention and work on the aspects they may present difficulties with. AFT does not pretend by any means to be independent or self-sufficient from other interventions but is proposed as a complement to traditional interventions. The main limitation of AFT is the absence of studies that evaluate its efficacy and benefits as well as study the possible harm that it could do.

REFERENCES

- Addington, J. & Addington, D. (1999). Neurocognitive and social functioning in schizophrenia. *Schizophrenia Bulletin*, 25, 173-182.
- Allen, K., Blascovich, J. & Mendes, W. B. (2002). Cardiovascular reactivity and the presence of pets, friends, and spouses: the truth about cats and dogs. *Psychosomatic Medicine*, 64, 727-739.
- Allen, K. M., Blascovich, J., Tomaka, J. & Kelsey, R. M. (1991). Presence of human friends and pet dogs as moderators of autonomic responses to stress in women. *Journal of Personality and Social Psychology*, 61, 582-589.
- Altschuler, E. L. (1999). Pet-facilitated therapy for posttraumatic stress disorder. *Annals of Clinical Psychiatry*, 11, 29-30.
- Aparicio, V. (1996). Política asistencial en España: Presente y Futuro (Care assistance policies in Spain; Present and Future). In J.A. Aldaz & C. Vázquez (Eds.), *Esquizofrenia: fundamentos psicológicos y psiquiátricos de la rehabilitación (Schizophrenia: psychological and psychiatric fundamentals of rehabilitation)* (pp. 167-186). Madrid: Siglo XXI.
- Banks, M. R. & Banks, W. A. (2002). The effects of animal-assisted therapy on loneliness in an elderly population in long-term care facilities. *The Journals of Gerontology. Series A, Biological Sciences and Medical Sciences*, 57, M428-M432.
- Barak, Y., Savorai, O., Mavashev, S. & Beni, A. (2001). Animal-assisted therapy for elderly schizophrenic patients: a one-year controlled trial. *The American Journal of Geriatric Psychiatry*, 9, 439-442.
- Barker, S. B. & Dawson, K. S. (1998). The effects of animal-assisted therapy on anxiety ratings of



- hospitalized psychiatric patients. *Psychiatric Services*, 49, 797-801.
- Bossard, J. H. (1950). I wrote about dogs; a mental-hygiene note. *Mental Hygiene*, 34, 385-390.
- Brodie, S. J. & Biley, F. C. (1999). An exploration of the potential benefits of pet-facilitated therapy. *Journal of Clinical Nursing*, 8, 329-337.
- Brodie, S. J., Biley, F. C. & Shewring, M. (2002). An exploration of the potential risks associated with using pet therapy in healthcare settings. *Journal of Clinical Nursing*, 11, 444-456.
- Collins, E. J. & Munroe-Blum, H. (1995). Integración de los tratamientos farmacológicos y psicosociales en la esquizofrenia. (Integration of the pharmacological and psychosocial treatments for schizophrenia). In C.L. Shriqui & H. A. Nasrallah (Eds.), *Aspectos actuales en el tratamiento de la esquizofrenia. (Current aspects in the treatment of schizophrenia)* (pp. 875-896). Madrid: Editores Médicos.
- Connor, K. & Miller, J. (2000). Animal-assisted therapy: an in-depth look. *Dimensions of Critical Care Nursing*, 19, 20-26.
- Cooper, A. G. (1992). Canine corrections - the human animal bond behind bars. *The Canadian Veterinary Journal*, 33, 515-517.
- Crow, T. J. (1985). The two-syndrome concept: origins and current status. *Schizophrenia Bulletin*, 11, 471-486.
- Cusack, O. (1991). Terapia facilitada por animales de compañía para incapacitados físicos (Animal-facilitated therapy for the physically disabled). In O. Cusack (Ed.), *Animales de compañía y salud mental (Companion animals and mental health)*. Barcelona: Fundación Purina.
- Farkas, M. (1996). Avances en Rehabilitación psiquiátrica: Una perspectiva norteamericana (Advances in psychiatric rehabilitation: a North American perspective). In J.A. Aldaz & C. Vázquez (Eds.), *Esquizofrenia: fundamentos psicológicos y psiquiátricos de la rehabilitación (Schizophrenia: psychological and psychiatric fundamentals of rehabilitation)* (pp. 167-186). Madrid: Siglo XXI.
- Folsom, D. P., Hawthorne, W., Lindamer, L., Gilmer, T., Bailey, A., Golshan, S. et al. (2005). Prevalence and risk factors for homelessness and utilization of mental health services among 10,340 patients with serious mental illness in a large public mental health system. *American Journal of Psychiatry*, 162, 370-376.
- Glynn, S. M. (2001). The challenge of psychiatric rehabilitation in schizophrenia. *Current Psychiatry Reports*, 3, 401-406.
- Goffman, E. (1970). *Internados. Ensayos sobre la situación social de los enfermos mentales (Asylums. Essays on the social situation of mental patients and other inmates)*. Argentina: Amorroutu.
- Grawe, R. W. & Levander, S. (2001). Neuropsychological impairments in patients with schizophrenia: stability and prediction of outcome. *Acta Psychiatrica Scandinavica*, 104, 60-64.
- Green, M. F. (1996). What are the functional consequences of neurocognitive deficits in schizophrenia? *American Journal of Psychiatry*, 153, 321-330.
- Guay, D. R. (2001). Pet-assisted therapy in the nursing home setting: Potential for zoonosis. *American Journal of Infection Control*, 29, 178-186.
- Hammer, M. A., Katsanis, J. & Iacono, W. G. (1995). The relationship between negative symptoms and neuropsychological performance. *Biological Psychiatry*, 37, 828-830.
- Kay, S. R., Fiszbein, A. & Opler, L. A. (1987). The positive and negative syndrome scale (PANSS) for schizophrenia. *Schizophrenia Bulletin*, 13, 261-276.
- Kidd, A. H. & Kidd, R. M. (1994). Benefits and liabilities of pets for the homeless. *Psychological Reports*, 74, 715-722.
- Kovacs, Z., Kis, R., Rozsa, S. & Rozsa, L. (2004). Animal-assisted therapy for middle-aged schizophrenic patients living in a social institution. A pilot study. *Clinical Rehabilitation*, 18, 483-486.
- Leff, J., Trieman, N. & Gooch, C. (1996). Team for the Assessment of Psychiatric Services (TAPS) Project 33: Prospective follow-up study of long-stay patients discharged from two psychiatric hospitals. *American Journal of Psychiatry*, 153, 1318-1324.
- Levinson, B. M. (1962). The dog as a "co-therapist". *Mental Hygiene*, 46, 59-65.
- Liddle, P. F. (2000). Cognitive impairment in schizophrenia: its impact on social functioning. *Acta Psychiatrica Scandinavica*, 101, 11-16.
- Mader, B., Hart, L. A. & Bergin, B. (1989). Social acknowledgements for children with disabilities: Effects of service dogs. *Child Development*, 60, 1529-1534.
- Mallon, G. P., Ross, S. B. & Ross, L. (2003). Diseño e instauración de programas de terapia asistida por animales en organizaciones sanitarias y de salud



- mental (Design and implementation of programs of Animal-Assisted Therapy in sanitary and mental health organizations). In A.H. Fine (Ed.), *Manual de Terapia Asistida por animales. Fundamentos teóricos y modelos prácticos (Manual of Animal-Assisted Therapy. Theoretical fundamentals and practical models)* (pp. 135-149). Barcelona: Fundación Affinity.
- Manchon, M. & Tomé, P. (1997a). Terapia Asistida por Animales (I). *Animalia*, 74, 24-28.
- Manchon, M. & Tomé, P. (1997b). *Teràpia Assistida per Animals*. Universitat Autònoma de Barcelona.
- Mayol-Pou, A. (2002). *Teràpia Facilitada per animals de companyia en pacients psicòtics greument deteriorats*. Tesi Doctoral Facultat de Psicologia. Universitat de les Illes Balears.
- Meise, U. & Fleischhacker, W. W. (1996). Perspectives on treatment needs in schizophrenia. *British Journal of Psychiatry (Suppl.)*, 9-16.
- Messent, P. R. (1985). Pets as social facilitators. The Veterinary clinics of North America. *Small Animal Practice*, 15, 387-393.
- Nathans-Barel, I., Feldman, P., Berger, B., Modai, I. & Silver, H. (2005). Animal-assisted therapy ameliorates anhedonia in schizophrenia patients. A controlled pilot study. *Psychotherapy and Psychosomatics*, 74, 31-35.
- Nathanson, D. E. & de Faria, S. (1993). Cognitive Improvement of children in water with and without dolphins. *Anthrozoös*, 6, 17-29.
- Odendaal, J. S. & Meintjes, R. A. (2003). Neurophysiological correlates of affiliative behaviour between humans and dogs. *Veterinary Journal*, 165, 296-301.
- Penades, R., Gasto, C., Boget, T., Catalan, R. & Salamero, M. (2001). Deficit in schizophrenia: the relationship between negative symptoms and neurocognition. *Comprehensive Psychiatry*, 42, 64-69.
- Penn, D. L., Ritchie, M., Francis, J., Combs, D. & Martin, J. (2002). Social perception in schizophrenia: the role of context. *Psychiatry Research*, 109, 149-159.
- Peralta V, C. MJ. (1994). Validación de la escala de los síndromes positivo y negativo (PANSS) en una muestra de esquizofrénicos españoles. (Validation of the positive and negative syndrome scale (PANSS) in a sample of Spanish schizophrenics). *Actas Luso-Españolas de Neurología y Psiquiatría*, 22, 171-177.
- Podberscek, A. L. & Blackshaw, J. K. (1994). The attachment of humans to pets and their reactions to pet death. *Canine Practice*, 19, 16-19.
- Poresky, R. H. & Hendrix, C. (1990). Differential effects of pet presence and pet-bonding on young children. *Psychological Reports*, 67, 51-54.
- Potter, J. T., Evans, J. W. & Nolt, B. H., Jr. (1994). Therapeutic horseback riding. *Journal of the American Veterinary Medical Association*, 204, 131-133.
- Sanmartí, P. (1992). La importancia de los animales de compañía como complemento terapéutico en el campo de la deficiencia mental. Una experiencia concreta: la residencia Rosella. *Animalia*, 30, 14-22.
- Serpell, J. A. (2003). Animales de compañía y bienestar humano: un análisis histórico del valor de las relaciones persona-animal (Companion animals and human well-being: a historical analysis of the value of animal-human relationships). In A.H. Fine (Ed.), *Manual de Terapia Asistida por animales. Fundamentos teóricos y modelos prácticos (Manual for Animal-Assisted Therapy. Theoretical Fundamentals and practical models)* (pp. 3-22). Barcelona: Fundación Affinity.
- Sheperd, G. (1996). Avances recientes en la rehabilitación psiquiátrica (Recent advances in psychiatric rehabilitation). In J.A. Aldaz & C. Vázquez (Eds.), *Esquizofrenia: Fundamentos psicológicos y psiquiátricos de la rehabilitación (Schizophrenia: Psychological and psychiatric fundamentals of rehabilitation)* (pp. 1-22). Madrid: Siglo XXI.
- Shumway, M., Saunders, T., Shern, D., Pines, E., Downs, A., Burbine, T. et al. (2003). Preferences for schizophrenia treatment outcomes among public policy makers, consumers, families, and providers. *Psychiatry Services*, 54, 1124-1128.
- Siegel, J. M. (1990). Stressful life events and use of physician services among the elderly: the moderating role of pet ownership. *Journal of Personality and Social Psychology*, 58, 1081-1086.
- Stasi, M. F., Amati, D., Costa, C., Resta, D., Senepa, G., Scarafioiti, C. et al. (2004). Pet-therapy: a trial for institutionalized frail elderly patients. *Archives of Gerontology and Geriatrics (Suppl.)*, 407-412.
- Trieman, N. & Leff, J. (1996). The TAPS project. 36: the most difficult to place long-stay psychiatric in-patients. Outcome one year after relocation. Team for the Assessment of Psychiatric Services. *British Journal of Psychiatry*, 169, 289-292.
- Vila, C., Seddon, J. & Ellegren, H. (2005). Genes of domestic mammals augmented by backcrossing with wild ancestors. *Trends in Genetics*, 21, 214-218.