

Cognitive Deficits in Schizophrenia: the Flower Workshop Initiative

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Abstract

✦ Advancement of research on the neurobiology of the schizophrenic brain has revealed a complex of factors, from genetic tendencies affecting the development of brain structure to functional impairment caused by defective molecular signaling. Recently, the attention of psychiatrists and mental health professionals has been directed to the presence of cognitive deficits, responsible for most of the obstacles to the social insertion of patients.

✦ The schizophrenic person has a difficulty to manage the flux of consciousness in social interactions. We address this difficulty with the Flower Arrangement Workshop, a methodology of Psycho-Social Rehabilitation that reduces the vulnerability of the schizophrenic in the social environment. The workshop was offered regularly (18 months) for a group containing 4 schizophrenic subjects, and the results indicate that the methodology is effective for the social dimension of human consciousness.





Nature Precedings : doi:10.1038/npre.2008.1497.1 : Posted 8 Jan 2008



Influence of Social Context on Brain Activity

✦ Philips and Silverstein (2003) developed a framework to relate neurobiological findings on schizophrenia with the results of cognitive tasks performed by the patients. The malfunctioning of brain microcircuits depends on the *context* (and the respective cognitive tasks to be performed) to become apparent. They proposed the concept of *cognitive coordination* to refer to the modulation exerted on neuronal activity by the context.

✦ A neurobiological cause of such deficits was identified as a failure of the brain to achieve fast synchronization of neural oscillations (Spencer et al., 2004)

Perceiving an Illusory Square

- ◆ Spencer et al. (2004) studied the correlation between the characteristics of the response-locked gamma oscillations in the visual cortex and the performance of 20 schizophrenic and 20 control subjects in a Gestalt perception test of perceiving an illusory square from four inducers;
- ◆ Since the conscious Gestalt pattern has not a direct correspondence in the stimulus, but is constructed by the brain, it is remarkable to find it correlated with a measurable brain pattern, suggesting that the generation of such a conscious content is supported by this electromagnetic activity registered by the EEG;
- ◆ The schizophrenics made more errors and had longer reaction times in their cognitive performance. Reaction time-locked oscillations were found in both groups. In schizophrenics, a response-locked oscillation was elicited at occipital sites *in a lower frequency range and at a longer latency*

Summary of Results Obtained by Spencer et al., 2004

- ✦ Schizophrenic subjects have more difficulty (than normal controls) to integrate distributed information into an unified Gestalt pattern;
- ✦ The difficulty is putatively a consequence of a defective mechanism of synchronization of gamma oscillations, leading to synchronization at a lower frequency and with a longer latency;
- ✦ The resulting lower frequency synchronization correlates with positive symptoms;
- ✦ The attempt to perform the Gestalt cognitive task also produces a second gamma oscillation at the parietal cortex, which is
 - ✦ Correlated with negative symptoms.

Therapeutic Directions

Psycho-social methodologies in the treatment of mental illness are conceived as complementary to medical treatment, having the objective of reducing the vulnerabilities of the patients and to create bonds (affective exchanges, working collectively, sharing and administering a house) that would allow them to develop productive social interactions (Saraceno, 1995).

The Spencer et al. (2004) results indicate that schizophrenics have a relative cognitive deficit that may perturb their social interactions, since they can perceive and interpret events differently from socially established standards. They are, on the average, *slower* to achieve the same results of normal subjects, possibly because of a malfunction of their brains' integrative mechanisms; they also *add* hallucinated content to their perceptions.

The Role of Psycho-Social Rehabilitation Methods

- ✦ If the cognitive limitations are not properly treated, they can frustrate the drive towards a satisfactory social interchange. In many cases, the difficulty in managing the flux of consciousness leads to an excessive consumption of nicotine, alcohol and/or other drugs, or to social isolation.
- ✦ The widely used medical pharmacological treatments are more effective to minimize the “ positive” symptoms, while the compensation for “ negative” symptoms requires the resources of psycho-social rehabilitation methods.
- ✦ Social rehabilitation practices have been developed in open services where the patients are treated by a multi-disciplinary team, including professionals formed in the human sciences. This environment is expected to provide an adequate context to overcome the cognitive limitations of the illness and to make possible affective and productive social interchanges among the patients, and with other individuals and groups.

Creating a Favorable Context

- ✦ An adequate context for psycho-social rehabilitation of schizophrenics should contain *cognitive facilitators* that reduce the perceptual ambiguities in each individual's perceptual processes, providing a basic set of *shared meanings* in the group that makes possible the successful communication between the subjects.
- ✦ The higher-level process of cognitive coordination (i.e., executive functions as the control of routines, focusing attention, working memory and problem-solving) “ depend on basic physiological mechanisms of dynamic grouping and contextual modulation” (Philips and Silverstein, 2003, p. 67-8).
- ✦ The cognitive facilitators would help the schizophrenic brain in the task of *dynamic grouping*, which “ creates new combinations of items while maintaining their distinct meanings” (Philips and Silverstein, 2003, p. 67).

The Flower Arrangement Workshop

- ✦ One of the activities currently used in open services of Mental Health in Brazil is the *Workshop on Flower Arrangement*.
- ✦ It is a methodology inspired by the reflections of Winnicott (1971) on the role of playing and inter-subjective communication in the formation of human personality. According to Winnicott, an adequate context allows the emotional expression of the subject in the form of a spontaneous gesture that eventually generates a product. The identification of the subject with this product was considered by him as important for the formation of the Self.
- ✦ Brazilian researchers Sato (2001), Aiello-Vaisberg et al (2003) and Aiello-Vaisberg (2004) extended Winnicott's principles to clinical practice in Mental Health. The Flower Workshop was derived from the *Ikebana* described by Okada (1998). This technique can be applied in public services of Mental Health as a therapeutic activity.

Methodology

- ✦ This research was carried at the CAPS (Center for Psycho-Social Attention), located in the city of Ribeirão Preto, State of São Paulo, Brazil. The CAPS is an open service in charge of Mental Health care. The assistance is provided by a multidisciplinary professional team, composed of four Psychiatric Doctors, two Psychiatric Nurses, one Occupational Therapist, two Social Assistants and two Psychologists.
- ✦ The Mental Health professional multi-disciplinary team organizes the workshop, bringing a variety of fresh flowers, and other materials to produce the arrangements. The patients are instructed to express their feelings by means of the construction of arrangements. They also are encouraged to offer the arrangement to somebody as a symbol of affection. With this facilitative orientation, they become able to produce the arrangements, and to communicate affectively with each other.

Organization of the Flower Workshop

- ✦ The workshops covered approximately the period of one and a half hour, with the presence of 10 patients on average.
- ✦ Several materials were presented to the participants: paper, tapes, glue, small boxes, jars, cans, recyclable plastic, which can be used to make the vases for the flowers.
- ✦ In the next phase, fresh flowers are brought to the participants, allowing their free choice of samples to be used in their arrangement. The fixation of the flowers is made by means of a sponge.
- ✦ The next phase is a social activity when the participants are asked to show their arrangements to the group and to observe the artwork made by the others. The coordinator asks each participating person about their feelings during the activity, and the emotions, memories and ideas associated with the artwork.
- ✦ At the end of the workshop, the coordinator discusses with the professional group the participation of the patients in the workshop.







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Subjects

- ✦ The main author of this work (MAOP), a Psychiatric Nurse, joined the professional group twice a month, during 18 months, to organize Flower Workshops offered to a group of 12 patients.
- ✦ Two patients in the group (fictitious names) had received the diagnostic of *Residual Schizophrenia*: Maria (58 y.o.) and Cláudio (54 y.o.). Two received the diagnostic of *Paranoid Schizophrenia*: Armando (47 y.o.) and Júlio (49 y.o.). All these schizophrenic patients were under medication during the realization of the activities.
- ✦ The patients who participated in the flower workshop had an average period of 12 years in Psychiatric Hospitals. After the Psychiatric Reform, they returned to live with their families, receiving treatment and care in the CAPS during a part of the day and then returning to their family home.
- ✦ The group of 12 patients, including the sub-group of schizophrenics, as well as the members of the professional team, freely consented to participate in this research. It was approved by the *Comitee of Ethics* of the *Ribeirão Preto School of Nursing/São Paulo University*.

Results (1): Cláudio

- ✦ We observed the behavior of the four schizophrenics participating in the group. Cláudio usually presents catatonia in the context of the health service environment. He is always silent, passive, crest-fallen, looking for cigar leftovers on the ground, and responds only to what is asked to him. He is a regular at the workshop, always making original and detailed arrangements, using a variety of papers and ribbons to make the vase. He chooses carefully the flowers to be used in the arrangement, usually picking up a small number of them. His arrangements are characterized by beauty and lightness, revealing an intimacy with flowers. The making of the arrangement apparently contributes to Cláudio's communication with the group. At the end of the work, when asked by the coordinator about his feelings, he expresses in few words the satisfaction with the results. He always puts his arrangement in exposition at the hall, saying that his intention is to embellish the place.

Results (2): Maria

- ✦ Maria also likes to participate in the workshop, but displays more difficulty in socializing. Gradually she becomes immersed in the activity. During the first workshop, she waited for guidance, assuming that the mental health professionals would make the arrangement for her. During the next workshops, she developed more autonomy, making her own choices: vivid and varied colors. Together with her involvement in the activity, she initiated dialogues with the colleagues. At the end of the workshop, Maria always mentions some fact about her family. She likes to bring her flower arrangement to her nephew, or to her mother's tomb, which is located in a cemetery close to her house.

Results (3): Armando

- ✦ Armando, who is hyperactive, has a difficulty in concentrating. Since the beginning of the activity, he promptly accepted the invitation for participation. However, when he started to attend to the Workshop, he decorated the vase but did not execute the next step. He left the room, and then returned in the end of the activity saying that he came back to see the arrangements made by the other participants. The next times he was able to finish the flower arrangement, showing a proper style. He always uses the yellow color for the vase, the placed ribbons, as for the choice of the flowers. He says that this color brings joy. In the end, he demonstrates satisfaction with his artwork, contemplating it for a time, showing it to the other participants, and repeatedly saying that he was able to conclude it. He usually offers the arrangement to an employee of the administrative sector of the service, with which he has good affective bonds and confidence.

Results (4): Júlio

✦ Júlio, when invited to participate in the group, did not accept the invitation immediately. He said that he was there for the medical therapy. However, he began to follow the other participants to the entrance of the room where the Workshop was carried. He displayed this behavior five times, until one morning the coordinator invited him again and he answered that in that day he would like to participate. Júlio is silenced, introspective, speaks low, but relates well with other patients of the group. Since the first arrangement he made, he chooses strong tones to decorate the vase. His chosen flowers also have vibrant tones, while his arrangements always have small number of flowers. After he started to attend to the Workshops, he did not miss any one of the meetings. He told some times that making the arrangement helps him to avoid negative ideas. He likes to look at the flowers, to contemplate the result of the arrangement, and to think that he was successful. To each end of the Workshop he takes the arrangement home to offer it to his the sister.

Concluding Remarks

- ✦ The patients adhered to the task, forming working groups characterized by a cordial interaction among the participants. At the end of the Workshop activities, all patients were able to produce the recipient (vase) and the flower arrangement. These activities allowed them to express and elaborate on emotions, and to overcome difficulties in social interaction with the other members of the group. The workshop apparently offered an opportunity to control the feelings of anxiety and angst that make this kind of social interaction difficult in normal conditions.
- ✦ The Flower Workshop can contribute to heal the damages of long-term hospitalization (Pereira, Furegato and Pereira, 2005), collaborating with the emergence of new ways to promote psycho-social rehabilitation.
- ✦ This methodology is correct in the light of recent findings on the neurobiology of schizophrenia. Such findings can help to improve the methodology by precisely indicating the cognitive facilitation resources that the therapeutic context should contain.



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