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Topic 1 - Ecological approaches to systems' health

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BENEFITS OF THERAPEUTIC HORTICULTURE IN INSTITUTIONALIZED PATIENTS WITH MENTAL HEALTH CONDITIONS WITHIN AN ORGANIC ENVIRONMENT

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Abstract: Therapeutic horticulture (TH) is a non-pharmacological approach to assist other psychiatric treatments and should be carried out according to organic principles for health reasons. The benefits of TH in individuals with mental health conditions can be found in the literature. However, it is scarce the information to understand if TH activities have advantages when compared to more conventional occupational therapies (OT), and this is the main objective of the present study. It was led in a psychiatric hospital in Portugal with 25 patients attending TH amongst other OT and 15 patients attending only OT. The instruments used were two questionnaires of sociodemographic and clinical data and patients' preferences, and two evaluation instruments, the 'Subjective Happiness Scale' (SHS) and the short form of the 'Social and Emotional Loneliness Scale for Adults' (SELSA-S).

The scores of the SHS and SELSA-S were generally similar for TH and OT groups, except the 'optimism about life' with a lower optimistic perception of life for the TH patients. It was found that the activities of TH were preferred to other OT by 48% of the patients in the TH group. The changes perceived by some of these TH patients included the perception of feeling more relaxed and happier. In this group, a greater number of days per week with activities provided lower loneliness and a greater happiness perspective compared to peers. For all patients, visits by family or friends also had a positive effect as revealed by the lower level of family emotional loneliness, compared to patients without visits. The findings and the benefits reported in the literature suggest that TH is an integrative treatment option, which merits further study and can be better tailored to maximize TH effectiveness.

Introduction: Therapeutic horticulture (TH) can be considered as an occupational therapy employed as a non-pharmacological approach to assist other psychiatric treatments and should be conducted according to organic principles for the patient's safety and environmental and consumer's health reasons. Together with the concept of social horticulture, TH is associated with a variety of benefits at the physical, emotional, cognitive and social levels, and falls into different scopes such as urban gardening programs (Mourão et al., 2019), environmental education, psychosocial rehabilitation,

social inclusion and support for the elderly, disabled or health care dependents. TH constitutes a therapeutic pathway in mental health care in patients with depression, schizophrenia (Ascencio, 2019; Kenmochi et al., 2019), Alzheimer's and other mental disorders (Cipriani et al., 2017). Although it can be found in the literature numerous benefits of TH in individuals with mental health conditions, it is scarce the information to understand if TH activities have advantages when compared to more conventional occupational therapies (OT) and this is the main objective of the study.

Material and methods: The assessment was conducted in a Portuguese psychiatric hospital, with an area for TH activities running organically. TH activities took place with teams of about eight patients that participated twice a week for two hours for 53 weeks. Patients with less mobility performed activities such as identification of plants and seeds and preparation of growing media. The more autonomous were involved in composting, soil preparation, sowing, planting, weeding, watering, and harvesting. The sample included 25 patients attending TH amongst other activities and 15 patients attending only OT (dance, swimming, theatre, handwork, and music). The majority of the participants were older than 55 years, mostly single or divorced, and with low literacy. The TH group had 60% of participants with some type of schizophrenia and 20% with mental disorders, while the TO group had 80% and 13%, respectively.

The study was based on the administration of two questionnaires designed essentially with multiple choice questions and two evaluation instruments, the 'Subjective Happiness Scale' (SHS, Lyubomirsky & Lepper, 1999; Pais-Ribeiro, 2012) and the short form of the 'Social and Emotional Loneliness Scale for Adults' (SELSA-S, DiTommaso et al., 2004; Fernandes & Neto), both validated for the Portuguese population. The hospital staff answered the first questionnaire, comprising sociodemographic and clinical data. The patient, jointly with the therapists that provided the necessary support, answered the second questionnaire with patients' preference and both scales. Before this single assessment, all participants or guardians signed informed consent. Data were analysed with SPSS Statistics v25, using ANOVA and t-tests with a $p = 0.05$ threshold, and regression analysis.

Results: Sociodemographic and clinical data of the two groups were generally similar, with some exceptions. The average institutional stay was significantly lower ($p < 0.05$) in the TH group (7.1 years) compared to the OT group (13.0 years). Patients with lower education and mild dependency degree were associated with longer institutional stays. Patients with TH participated in a greater number of different occupational therapy activities (4.3 activities) ($p < 0.05$) than participants only with OT (2.9 activities). However, the number of weekdays with any OT, including TH, were similar within the two groups, 25.0% of the patients attended activities for 2-3 days/week and 74.0% for 4-5 days/week.

For the Subjective Happiness Scale (SHS), the 'personal happiness perspective' (SH1) and 'happiness perspective compared to peers' (SH2), were identical for all patients with an average score of 4.8 and 4.6, respectively. The scores were above the neutral value (4.0), but they are relatively low, considering the maximum score of 7. Age can explain 12% of the variability of the SH2 ($R = 0.347$; $p < 0.05$). The 'optimism about life' (SH3) was lower in the HT group (3.1) compared to the TO group (4.0), and the score never exceeded the neutral value, revealing a low perception of optimism about life for all patients. Both groups showed an identical score on 'pessimism concerning life' (SH4).

The scores for global loneliness and the subscales of social loneliness (friends), family emotional loneliness, and romantic emotional loneliness were similar for both groups (TH and OT). However, for the total sample, patients without visits from family or friends, showed a higher family emotional loneliness, compared to patients who received visits. The perception of global loneliness explained about 14% of the perception of personal happiness compared to peers (SH2) ($R = 5.5$; $p < 0.05$).

Therapeutic horticulture was the favourite activity for 47.8% of the participants in the TH group and the changes perceived by some of these patients, included the perception of feeling more relaxed (40%) and happier (20%). In this group, a

greater number of days per week with activities, provided lower social loneliness, lower global loneliness, and a greater happiness perspective compared to peers.

Discussion: A previous study performed with chronic schizophrenia patients reported that a TH treatment of two-hours once a week for ten weeks led to positive outcomes regarding the psychopathological symptoms of schizophrenia, compared to the control group (Oh et al., 2018). Moreover, Kenmochi et al. (2019) stated that TH intervention for 3 months added to routine OT intervention, might be effective to decrease depression and/or anxiety in patients with chronic schizophrenia and long-term institutional stay (> 10 years). Although, the feeling of hopelessness and quality of life might not change. In this research, long-term institutional stay and medication required by participants probably limited the effect of TH intervention as found by Kenmochi et al. (2019).

A recent review about TH as an intervention for schizophrenia (Ascencio, 2019) referred that although each area of functioning (social, psychological, neuropsychological, and vocational) showed areas of improvement and areas of no change, it was more common to find benefits than to find unaffected participants by the intervention. This indicates that TH is an integrative treatment option that merits further study on both process and outcome evaluation, which is also supported by Cipriani et al. (2017). Moreover, TH can be better tailored to maximize effectiveness (Ascencio, 2019) and should always be managed according to organic principles for patient safety and environmental and consumer health reasons.

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