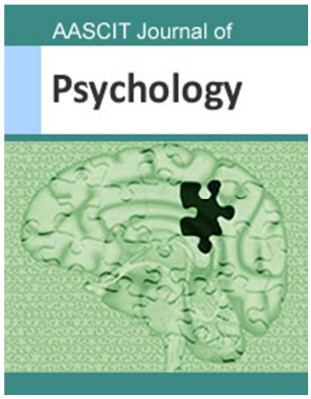
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The Effect of Ambulatory Snoezelen Approach on Depression Among Elders' Population in Nursing Homes

Ansaldo Joy[1], Cohen Juliette[1], Cuni Alice[1], El Farouki Najwa[1], Ellul Valérie[1], Mace Maeva[1], Moran Laurie[1], Palazzolo Jerome[1, 2, *]

[1]Department of Psychology, University of Nice Sophia Antipolis, France
[2]Department of International Health, International University Senghor, Alexandria, Egypt

Email address
palazz@free.fr (P. Jerome)
[*]Corresponding author

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Abstract
The demographic exponential growth of elders led to a high increase of the proportion of dependant elders. Besides, 30% of the inhabitants of a retirement home display a major depressive disorder. Abusively mistaken with normal ageing, this frequent psychiatric pathology remains under diagnosed and outsourced. However, the nonpharmacological approach, such as psychotherapy proved its efficiency in treating depression for elders. Among theses approaches, Snoezelen relies on sensory stimulation and relaxation, and is developing in gerontology. Therefore, building a single case ABAB design enables evaluating the effects of this approach using qualitative measures. Globally, these results indicate a positive effect of the Snoezelen approach with a decrease of depression, anxiety, and fatigue but also an increase of vigour and interpersonal relationships. Hence, these results are discussed, criticized and showcase the benefits of this approach. They also underline the necessity to pursue these works with meticulous experimental protocols, to set up a Snoezelen environment.

1. Theorical Framework

Depression is one of the most frequent neuropsychiatric pathologies among elders. According to WHO [2], "unipolar depression relates to 7% of elders and represents 5,7% of the total incapacities (DALY) among those who are more than 60 years old". In nursing homes, this rate is much higher and reaches 36% of which 30% has a major depressive disorder [26, 31]. The stake of treating depression among elders requires distinguishing between real depression signs and clinical affections linked to ageing.

Moreover, the nosography of depression [2, 21] concerning elders is similar to the young adult one. However, this pathology takes an unusual form of symptomatology [13, 16, 25, 26, 31, 34], but also of neuroanatomy since elders suffer an uncommon worsening of cortical and undercortical affections with ageing [1, 5, 6].

Regarding etiology, the frequent causes of a major depressive disorder arise from social, somatic and psychological factors. These factors might include negative internal persona, low self-esteem, abandoning experience but also loneliness, remoteness, rarefaction and poverty of relationships [31]. Experiencing abuse [21] or falling [17],

frequently foster trauma and might be worsening factors of major depressive disorder.

Besides, Lépine et al. [18] showed that 37,6% of patients who suffer from major depressive disorder have a comorbidity diagnosis, which is worsened by ageing. For that matter, it seems that having many pathologies favours psychiatric affections like depression [26, 32]. Hence, depressive disorder can be associated with many pathologies, which can be considered as causes or consequences of depression, like chronic pain, [29], apathy [12], anxiety [24], or cognitive impairment [23].

Consequently, depression usually relies on a vicious circle because of the interdependence of its causes and consequences. Additionally, it favours executive and frontal disorders among elders [32]. Moreover, the association of depressive disorder and dysexecutive syndrome, leads to a loss of autonomy, undernourishment and contributes to an increase of falling risks, especially in presence of cognitive impairment [32]. It is also relevant to underline that the depressive disorder favours cognitive impairment of Alzheimer's type [23, 26, 31]. Therefore, depression tends to increase the perception of health issues and might lead to suicide [10, 11, 24]. For that matter, ANESM [in 24] indicated that 38% of suicides in France are related to elders who age more that 65 years olds of which 90% are caused by psychiatric disorders, mainly including depression. For all that, up to 60 and 70% of depressive elders are neglected, unknown or mistreated which is worse for the very old persons [8], and this is the case no matter the elders' specific diagnosis tools, like Geriatric depression scale GDS of Yesavage and coll., Hamilton's hetero-evaluation scale, Cornell's scale or the Montgomery Asberg depression rating scale MADRS [14, 24].

Pharmacological treatments are often privileged [21, 33], and leads to worsening risks [16]. Thus, it is relevant to opt for a holistic model of medico-psycho-social treatment, which underlines the importance of therapeutic alliance with the patient, his family and interdisciplinary collaboration [27].

Furthermore, most of the proposed psychotherapies are not really adapted to elders. Indeed, it is undeniable that ageing's factors have to be considered in the therapeutic process [24]. Moreover, body-centered techniques show a clear interest in treating elders because they aim at reinvesting the body as an object of pleasure and relationship [26]. This is why recently, the Snoezelen approach tends to be applied in gerontology [19, 22, 29]. This concept has been developed in 1970 by Ad Verheul et Jan Hulsegge, and named under the contraction of Snuffelen, which means smelling in a discovering dimension, and Doezelen that refers to drowsiness and the sootheness of well-being [19, 22].

Therefore, promising a unique method that adapts to each person seems relevant and encouraging, though little studies have been conducted for elders. The Snoezelen approach appears to be nonpharmacological and effective when associated with other techniques, on neuropsychological and psychiatric symptoms [19, 22].

Institutes dedicate a room to practice the Snoezelen approach, though it is not always easy to do so. It is not uncommon, to meet in geriatric units and retirement homes, Snoezelen wagons that gather objects for a multi-sensorial stimulation. This type of ambulatory device enables widening the Snoezelen approach to the inhabitants who suffer from the inabilities to move (i.e. handicap, palliative care; 24), and steers clear from the overstimulation since it is recommended to only stimulate two senses simultaneously.

Regarding the use of this approach in depression, few studies have been conducted. For all that, the research of Su-Kyoung et al. [30] showed that applying Snoezelen entailed a decrease of anxiety, anger and depression. It also led to a positive effect on emotional stability, which was confirmed by other studies [3, 19, 28]. Hence, this data suggests that using the ambulatory Snoezelen approach decreases depression.

2. Experimental Methodology

Mrs G is a participant, aged 83 who has been living in a retirement home for three years. After trying to commit suicide, she has been transferred to a new institute since December 2016. Her cognitive evaluation (Mini-Mental State Examination) does not enlighten any disorder. However, her emotional evaluation (Geriatric Depression Scale 15) indicates a major depressive disorder associated with an anxiety disorder. Consequently, she has been given an antidepressant (MIRTAZAPIN, 15 mg, 0-0-2), a tranquilizing (OXAZEPAM 10 mg, 1-1-1), and a soporific (ZOPICLONE 7,5 mg, 0-0-2). During our interviews, Mrs G seems to be in the therapeutic alliance since she remains calm, her speech tends to be fluent and coherent though stamped by anxiety and sadness. Besides, the participant had to fit in some inclusion and exclusion criterions such as being willing, being affiliated to social security, being aged 60 or more, living in a retirement home, suffering from depression and being pharmacologically treated for it (i.e. antidepressants).

2.1. Hypothesis

We put forward the following operational hypothesis:

H0 = no difference between phases A and B.

HA = at least one significant difference between phase A and B such as Ai ≠ B with a .05 α risk.

2.2. Procedure

An ABAB single case design has been chosen to observe the consequent changes to the presence or absence of treatment [10]. There was a special need to determine a pre-therapeutic baseline, called phase A. A measure of depression has been made using the Montgomery & Asberg Depression Rating Scale [20], then a measure of the emotional state using the French version of the Profile Of Mood states (POMS-f). The protocol has been kept up with a phase B, which was the interventional phase followed by the same

measures. Alternating between the suspension and the resumption of the therapy will enable confronting the results to determine its efficacy. Each phase will last four days during two weeks, which totals sixteen sessions. Interventional phases (phase B) will consist of proposing a Snoezelen session in the participant's room. After making sure the primary needs are satisfied, the patient will just have to sit comfortably. A calm, warm and secure atmosphere will be created to trigger relaxation. For that, the room's lightning will be lowered to allow the use of a light therapy lamp and other objects of sensorial stimulation. They include a sensory chart, essential oils, music and sounds that favour calming. It is capital not to take action too quickly but to escort the participant in discovering this environment, at her own pace. The session does not exceed 30 minutes because of the drop of attention. Besides, it is necessary to create with the participant a ritual to end the session like switching positions, getting up slowly, reducing the music or restoring back the lights. Finally, it was also possible to ask for the participant's feelings.

2.3. Material

Two identical measures have been made during phases A and B. The first one aims at estimating the depression's rate using the Montgomery & Asberg Depression Rating Scale (MADRS) [20]. The statistical quality and good sensibility to change are decisive in this scale, since the risk of a "false positive" is highly limited. Moreover, a multi-evaluative testing has been favoured to avoid a potential bias but also in terms of complementarity and multidisciplinarity. The second measure used the French version of the Profile of Mood States (POMS-f), [7], and aimed at establishing an emotional profile to observe objectively the mobilised emotional aspects in depressive disorder and their fluctuation in the Snoezelen approach. However, we will only focus on depression's item.

2.4. Statistical Processing

Firstly, a descriptive analysis will enable observing graph changes. Then, an inferential analysis, based on the use of a non-parametrical method, the H test of Kruskall-Wallis, will enlighten statistical changes in the protocol. However, the results in each phase are not consistent since Mrs G expressed four refusals during the protocol. Therefore, the phase A counted three sessions, the phase A2 totalled four, B1 three sessions and phase 2 was composed by two sessions.

2.5. Results

Descriptive analysis (Figure 1) shows a decrease between phases A and B that reach -1,62 points for depression. There was also a decrease between phases A1 and A2 with a decrease of -4,3 points regarding the depression item whereas the fluctuation between B1 and B2 did not vary much and its stability remained. Inferential analysis (Chart 1) indicate a significant difference between the phases A1 and B1, as well as the phases B1 and A2, but also the phases A2 and B2 for the depression's item (POMS-f).

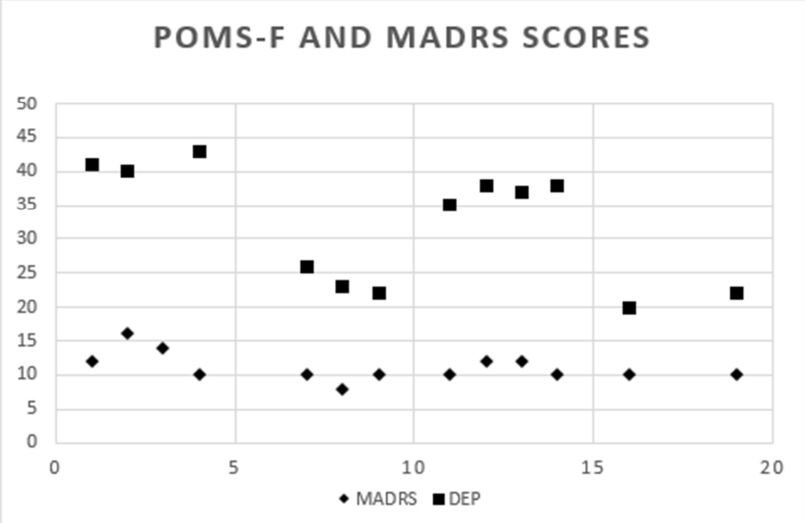


Figure 1. *Scores obtained for POMS-f (DEP) and MADRS.*

Table 1. *Data and inferential statistics.*

	H	P
POMS-f (DEP)	10.164	P<0.001
MADRS	4.934	0.1767

3. Discussion

This unique case study aimed to show the effect of ambulatory Snoezelen approach to treat elders who suffer from depression in nursing homes. However, the significant effects observed between phases A and B show that this approach decreased depression. Conversely, no significant effects were found on depressive aspects evaluated through the MADRS.

Therefore, it seems that the choice of the tool should be reconsidered over the effect of Snoezelen on depression. This

result might be subject to controversy but seems to come from many disruptive factors. They include a bad weekly division and an inappropriate number of sessions because of refusal. This second point can find justification either by the lack of motivation, which is linked to depression, or by the strength of therapeutic alliance that could have been enhanced by psychoeducation. Besides, only two measures have been considered during each phase, which is relatively limited. This adds up to the single case protocol that impedes comparing and generalizing the results. Finally, an experimenter bias might be suggested, which could have been resolved by a double-blinded experiment.

At last, to establish clinical perspectives in an optimization sight of the Snoezelen effects on elders who suffer from depression in retirement homes, it is relevant to underline that these results are promising. Actually, even a slight persistence of a decrease of anxiety and depression, in phases A2, subtend the necessity to create a Snoezelen environment to optimize the effects on a long-term sustainability [4, 15, 19].

4. Conclusion

Significant effects of ambulatory Snoezelen approach were found on depression treatment with Mrs G. Consequently, deepening more strenuously these study perspectives seems relevant to generalize the results. It will lead to build more scientific methods (i.e. a bigger sample, more adapted diagnostic tools etc.). Further research might consider using the Snoezelen approach to limit drug therapy and its adverse effects.

Conflict of Interest

The authors refute any conflict of interest linked to this article.

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