Effect of Nordic Sensi® Chair on behavioral and psychological symptoms of dementia in nursing home residents: a randomized controlled trial

This whitepaper is a summary of a published study[1].

Background

A wide range of non-pharmacological approaches have shown positive results for the management of behavioral and psychological symptoms of dementia (BPSD) including physical exercise, music therapy, multisensory stimulation, psycho-educational interventions for caregivers or care staff training[2]. However, the need for the development and application of new non-pharmacological therapies is present[3,4].

Within this context, modern rocking chairs may be suitable for long-term care because rocking, a rhythmically repeated movement, can contribute to psychosocial well-being[5]. However, only a few studies have evaluated the use of rocking chairs for People with Dementia (PwD).

Studies have shown that the use of a rocking chair can produce improvements in anxiety and depression as well as reductions in pain medication and increased quality of life. A multicenter survey of long-term care facilities staff reported that the use of a rocking chair improved quality of care and contributed to a calmer environment for PwD.

In this regard, it is of interest to consider the therapeutic role of the Nordic Sensi Chair* (NSC) in the treatment of BPSD based on its ability to offer PwD an individual sensory experience that brings the benefits of music, therapeutic tactile stimulation, vestibular stimulation, and relaxation in an integrated way, especially those in nursing homes.

Figure 1: The Nordic Sensi Chair*

Music-based interventions were originally developed with the aim of accomplishing individualized goals and offer a promising option if targeted and evaluated effectively[6]. The use of music in PwD is based on the ancestral link between sounds and the human being and its potential to evoke emotions experienced throughout their lives. Music can

become a way of expressing their emotions in daily life, thus preventing the onset of anxious or agitated behaviors[7,8].

The NSC (Wellness Nordic A/S, Espergaerde, Denmark, Figure 1) is an electrically operated rocking chair with built-in music, MusiCure® composed by Niels Eje[9]. MusiCure is used in a wide variety of different types of treatment[9]. Recently MusiCure has also been used for the treatment of PwD[10]. The NSC provides automated rocking delivered via a choice of 3 programmes: 'Relax' for deep relaxation, 'Refresh' for recovery, and 'Comfort' for gentle relaxation. NSC can be used in combination with a weighted blanket to help increase the feeling of security and relaxation and to help users to perceive their own body.

The Nordic Sensi Chair trial

A 16 week randomized clinical trial was conducted to evaluate the effectiveness of the NSC in the management of BPSD at two nursing homes in Spain. The trial included male and female residents with a diagnosis of dementia, clinically defined in stages 4 to 7 of the Reisberg Global Deterioration Scale (GDS). In total 77 residents were included, whereas 40 residents were assigned to the treatment group and 37 to the control group. The 16-week trial included a first 2- week pre-intervention phase followed by a second 12-week intervention phase with the use of the NSC and a third 2-week post-intervention phase without receiving NSC.

Assessments were carried out at 4 points in time: pre-intervention, mid-intervention, end of intervention and post-intervention.

In addition to standard care, the treatment group received one 20 minute session per day, three times a week using the NSC Relax Programme and the control group received, at the same time and duration, the care and activities that were part of the daily routines of the centre, including group sessions of cognitive stimulation, training in activities of daily living or communication training.

In both nursing homes, the treatment was carried out on weekdays, during the day shift. The chairs were placed in a room intended exclusively for the treatment sessions. To facilitate confidence and adherence with intervention, the residents were always introduced to the chair by the same caregiver.

The trial also included the evaluation of caregivers from both nursing homes who participated in the direct provision of care to the participating residents.

Outcome Measurement

The Neuropsychiatric Inventory–Nursing Home Version (NPI – NH)[11] was used to evaluate the effect on the primary outcome. The NPI-NH is used to characterise the psychopathology of residents in nursing homes as well as to measure the impact of anti-dementia and psychotropic drugs and behavioral changes in PwD in nursing homes.

Secondary efficacy measures looked at the effect on agitation and depression using the Cohen- Mansfield Agitation Inventory (CMAI) and the Cornell Scale for Depression in Dementia (CSDD).[12,13] In addition to this, assessment of other cognitive functions were carried out using different evaluation tests.

The trial also included the evaluation of caregivers from both nursing homes who participated in the direct provision of care to the participants. The assessment of occupational distress for the staff was carried out by means of the Occupational Disruptiveness subscale of the Neuropsychiatric Inventory-Nursing Home (NPI-NH-OD).

Results

At baseline, there were no statistically significant differences between the two groups for the demographic and clinical variables except for sex (more women in the treatment group) and anxiolytic use (benzodiazepines; higher in the control group).

No deaths or serious adverse events occurred during the study. Care staff said that the NSC was well accepted and tolerated with no differences through different stages of global deterioration scale.

Primary endpoint

Patients treated with the NSC showed statistically significant superiority on the NPI-NH total score over patients in the control group.

The NSC showed benefits in most of BPSD. Notably, its use yielded significant benefit regarding agitation, apathy, irritability, disinhibition, aberrant motor activity, and euphoria over the 12-week treatment period.

Secondary endpoint

Regarding the CMAI, residents in the NSC group exhibited lower levels of agitation than the control group after 12 weeks of treatment.

The Severe Mini-Mental State Examination showed no statistically significant differences in cognitive functioning at the end of the treatment period from baseline between the two groups.

When evaluating the Bedford Alzheimer Nursing-Severity Scale the NSC group showed statistically significant improvement in functional capacity at the end of the treatment period from baseline.

The NPI-NH-OD total score for the caregivers improved significantly in the NSC group, which indicates that staff routines were less affected by BPSD of residents.

These findings and those provided by other studies, showed a potential therapeutic role of the NSC in the treatment of BPSD based on its ability to offer people living with dementia a

sensory experience that brings the benefits of music therapy, therapeutic tactile stimulation, vestibular stimulation, multi-sensory stimulation and relaxation.

For caregivers, the NSC was considered an affordable, easy to use, and non-labour intensive intervention in the care of their residents. The use of the NSC played a beneficial role in the psychological well-being and work performance of caregivers. Caregivers in the NSC group benefited from the behavioral improvement that residents experienced, showing less distress and reduced demands from the residents than caregivers in the control group. These benefits were more evident throughout the study as the frequency and severity of BPSD was reduced in the NSC group.

Conclusion

Overall the results showed a significant improvement in the residents functional status and quality of life over 12 weeks in the NSC group.

The reduction in overall BPSD, which resulted in a decrease in caregiver occupational disruptiveness, and the improvement in quality of life for residents suggest that NSC represents an encouraging new non-pharmacological approach to improve BPSD of nursing home residents with dementia.

The NSC has demonstrated to be a safe, practical and effective intervention in PwD and can be used as part of the care plan in nursing homes.

Figure 2: Patient using Nordic Sensi Chair in combination with U-shaped cushion and weighted blanket. Image provided by Wellness Nordic A/S and depicted with models.

* Nordic Sensi Chair is available in the USA and Canada under the registered name Wellness Nordic Relax® Chair.

Note:
Research reported in this publication was supported in part by Arjo AB, Malmö, Sweden, a distributor of the Nordic Sensi Chair. The funders of the study had no role in study design, data collection, data analysis, data interpretation, or writing of the report. The NSC was provided by Wellness Nordic A/s for study purposes only and was removed at the end of the study.

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