

Effect of Nordic Sensi® Chair on Behavioral and Psychological Symptoms of Dementia in Nursing Home Residents

A Randomized Controlled Trial

José María García-Alberca et al

Journal of Alzheimer's Disease 96 (2023) 1609–1622

Reviewed and commented by Dr. Med Poul Erik Branebjerg, Denmark

The NSC (Nordic Sensi® Chair) Malaga Study
Version 1:1, date: 01.10.2024

The Study on Nordic Sensi® Chair in Malaga, Spain 2023

- ▶ *Effect of Nordic Sensi® Chair on Behavioral and Psychological Symptoms of Dementia in Nursing Homes Residents: A Randomized Controlled Trial*
- ▶ *Chief researcher is Dr. /PhD José Maria Garcia supported by a team of nurses, nurse-assistants, psychiatrists and neuropsychiatrist*



Journal of Alzheimer's Disease 96 (2023) 1609–1622
DOI 10.3233/JAD-230391
IOS Press

1609

Effect of Nordic Sensi® Chair on Behavioral and Psychological Symptoms of Dementia in Nursing Homes Residents: A Randomized Controlled Trial¹

José María García-Alberca^{a,*}, María Dolores de la Rosa^a, Paloma Solo de Zaldívar^a, María Ledesma^a, Estela Oltra^a, Esther Gris^a, Olga Ocejó^b, Javier Torrecilla^b, Carmen Zafra^b, Ana Sánchez-Fernández^c, Tomás Mancilla^c, Mercedes López-Romero^c, Raquel Jerez^a, Nuria Santana^a, José Pablo Lara^d, Miguel Ángel Barbancho^d and Encarnación Blanco-Reina^e
^aAlzheimer Research Center and Memory Clinic, Instituto Andaluz de Neurociencia (IANEC), Málaga, Spain
^bCentro Residencial Almudena, Rincón de la Victoria, Spain
^cResidencia DomusVi Fuentesol, Alhaurín de la Torre, Spain
^dBrain Health Unit, School of Medicine, University of Málaga, Málaga, Spain
^ePharmacology and Therapeutics Department, School of Medicine, University of Málaga, Málaga, Spain

Accepted 29 September 2023
Pre-press 21 November 2023

Abstract.

Background: Behavioral and psychological symptoms of dementia (BPSD) are present in most people with dementia (PwD), including Alzheimer's disease. There is consensus that non-pharmacological therapies represent the first line of treatment to address BPSD.

Objective: We explore the efficacy of the use of a rocking chair (Nordic Sensi® Chair, NSC) in the treatment of BPSD in nursing home residents with moderate and severe dementia.

Methods: We carried out a 16-week randomized, single-blind, controlled, clinical trial with PwD admitted to nursing homes. Participants were assigned to a treatment group ($n = 40$) that received three times a week one session per day of 20 minutes in the NSC and a control group ($n = 37$). The Neuropsychiatric Inventory-Nursing Home (NPI-NH) was used as primary efficacy outcome. Occupational distress for the staff was evaluated using the NPI-NH Occupational Disruptiveness subscale (NPI-NH-OD). Statistical analyses were conducted by means of a Mixed Effects Model Analysis.

Results: Treatment with the NSC was associated with a beneficial effect in most of BPSD, as reflected by differences between the treatment and control group on the NPI-NH total score (mean change score -18.87 ± 5.56 versus -1.74 ± 0.67 , $p = 0.004$), agitation (mean change score -2.32 ± 2.02 versus -0.78 ± 1.44 , $p = 0.003$) and irritability (mean change score -3.35 ± 2.93 versus -1.42 ± 1.31 , $p = 0.004$). The NPI-NH-OD total score also improved the most in the treatment group (mean change score -9.67 ± 7.67 versus -7.66 ± 6.08 , $p = 0.003$).

Conclusions: The reduction in overall BPSD along with decreased caregiver occupational disruptiveness represent encouraging findings, adding to the potential of nonpharmacological interventions for nursing home residents living with dementia.

Introduction

Overview of Dementia and BPSD

- ▶ Dementia is a progressive syndrome affecting cognitive and functional abilities
- ▶ Behavioural and Psychological Symptoms of Dementia (BPSD) includes symptoms like depression, agitation, irritability and more
 - ▶ These symptoms significantly impact the quality of the life of patients , families and caregivers
- ▶ The level of BPSD is assessed by scales – often NPI-NH (Neuropsychiatric Inventory-Nursing Home)
- ▶ Assessments of BPSD (e.g. by NPI-NH) is i.e. used as a quality control tool and evaluate new interventions (pharmacological or other)

Overview of the NSC Malaga study

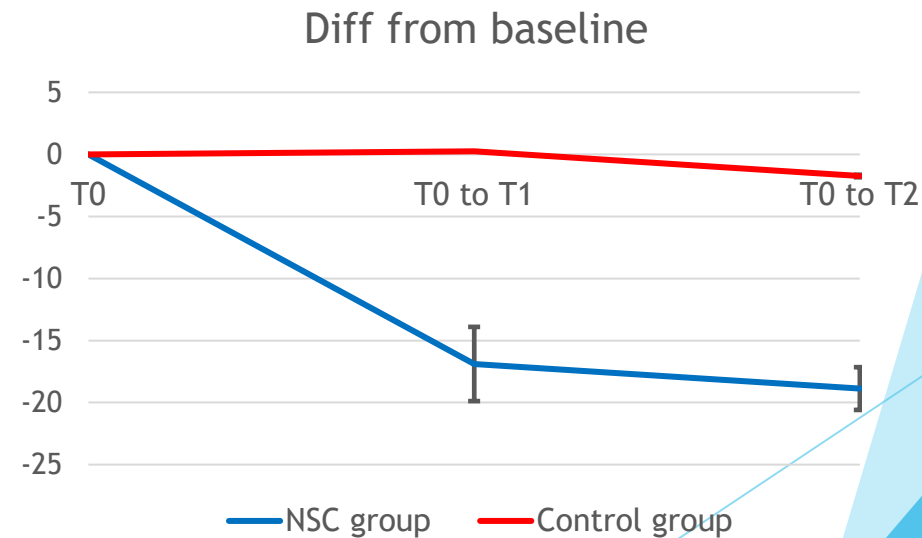
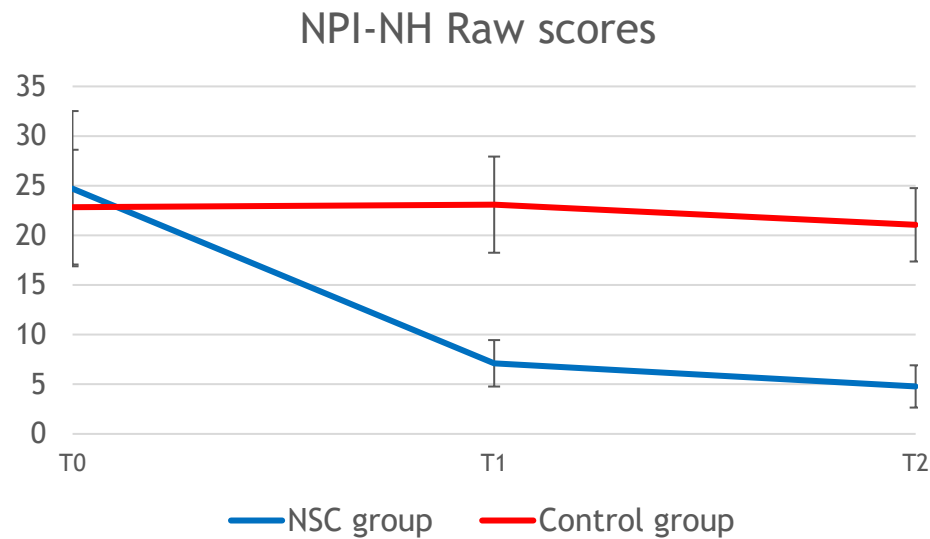
Study Objective and Method

- ▶ Primary Objective
 - ▶ To evaluate the effectiveness of the Nordic Sensi® Chair (NSC) in managing BPSD in Persons with Dementia (PwD) in nursing homes. Effect is assessed by the NPI-NH scale.
- ▶ Secondary Objectives
 - ▶ Assess the chair's impact on cognitive functioning, quality of life and caregiver occupational disruptiveness
- ▶ Hypothesis
 - ▶ The NSC intervention will lead to a significant reduction in BPSD compared to usual care
- ▶ Method
 - ▶ 16-weeks randomized, single-blind, controlled clinical trial
 - ▶ 88 PwD from two nursing homes were randomized. 40 and 37 respectively finished the study
 - ▶ Groups: Treatment with NSC sessions vs. Control with regular care and no use of NSC

The NSC Malaga study

Results - Primary Parameter

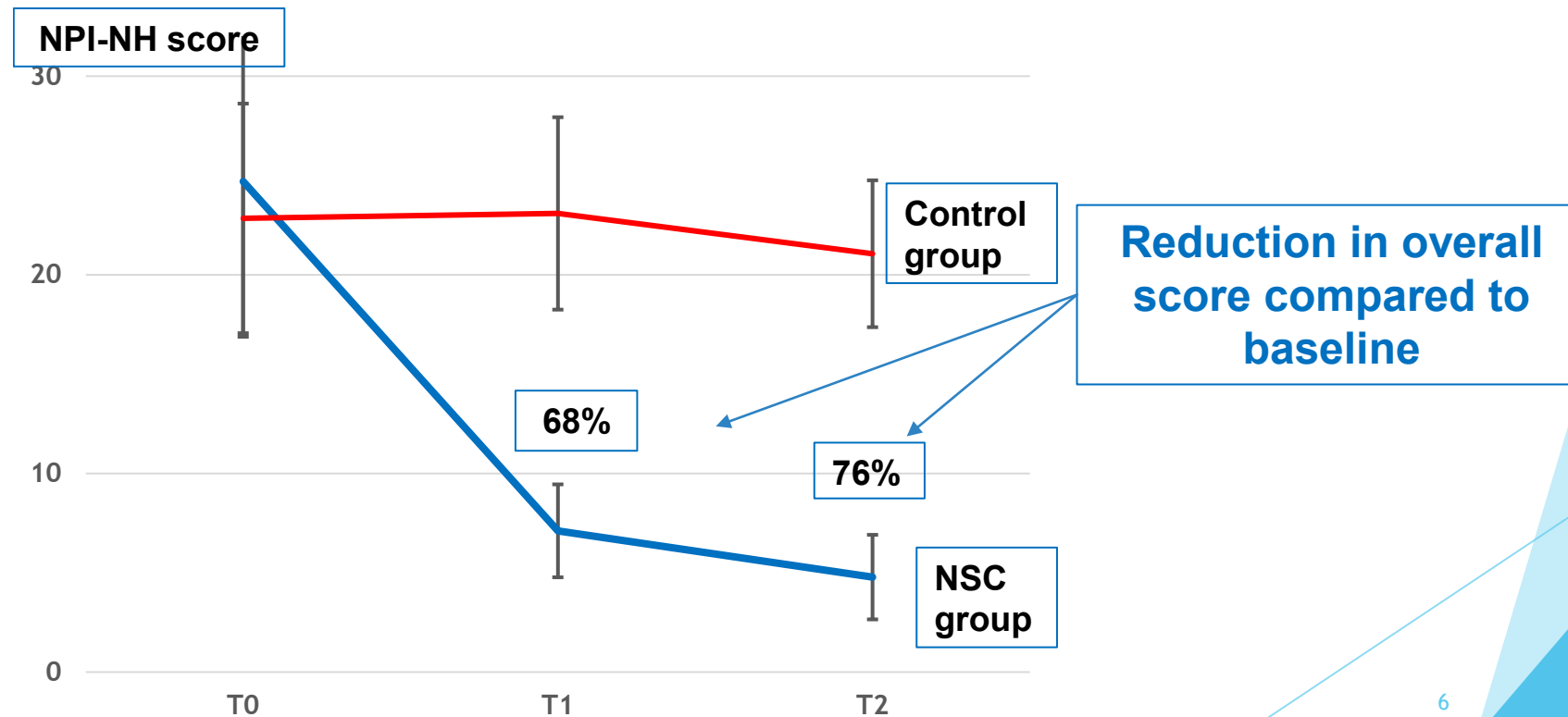
- ▶ Overall BPSD Improvement
 - ▶ A Significant (**68 to 76%**) reduction in NPI-NH total score from baseline in the treatment group
 - ▶ A Significant reduction in the treatment group compared to control after both 6 and 12 weeks
 - ▶ Mean change score: NSC vs. Control, $p = <0.001$



5

Results - Key message

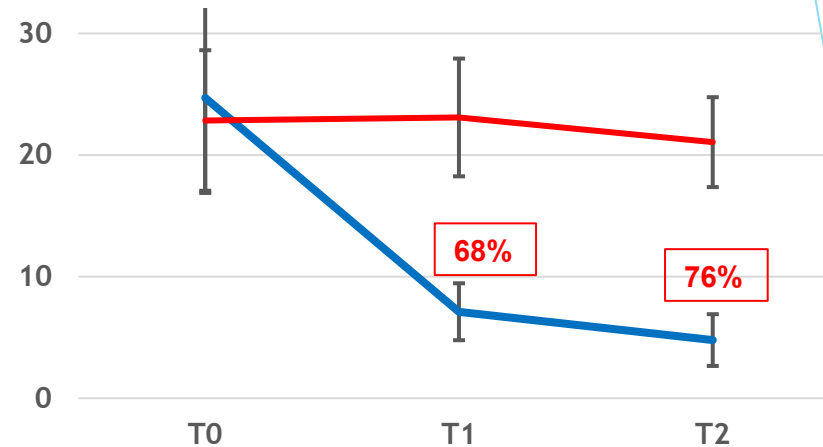
- Use of Nordic Sensi®Chair 20 min - 3 times per week for 12 weeks
- significantly and substantially reduce symptoms of dementia (BPSD)
- and make caregiving easier and lessen the burden for the staff



Key messages results

▶ Interpretation of Results

- ▶ The study gives objective evidence that
 - ▶ the use of the Nordic Sensi® Chair in 12 weeks significantly and substantially reduced BPSD symptoms, particularly agitation and irritability. This should improve the PwD quality of life.
 - ▶ Patients get less agitated and irritable and therefore are less disturbing to caregivers.
 - ▶ The use of NSC also decreased caregiver occupational disruptiveness, suggesting saved caregiver resources
- ▶ **If we relate the study results to the Swedish BPSD database:**
 - ▶ **In Sweden, the average patient with dementia has an NPI-NH score around 20. The Malaga study suggest/document this will be reduced to below 10 after 6 weeks of rocking 20 min 3 times per week**
- ▶ So far, no pharmacological or non-pharmacological treatment has achieved such a good result!

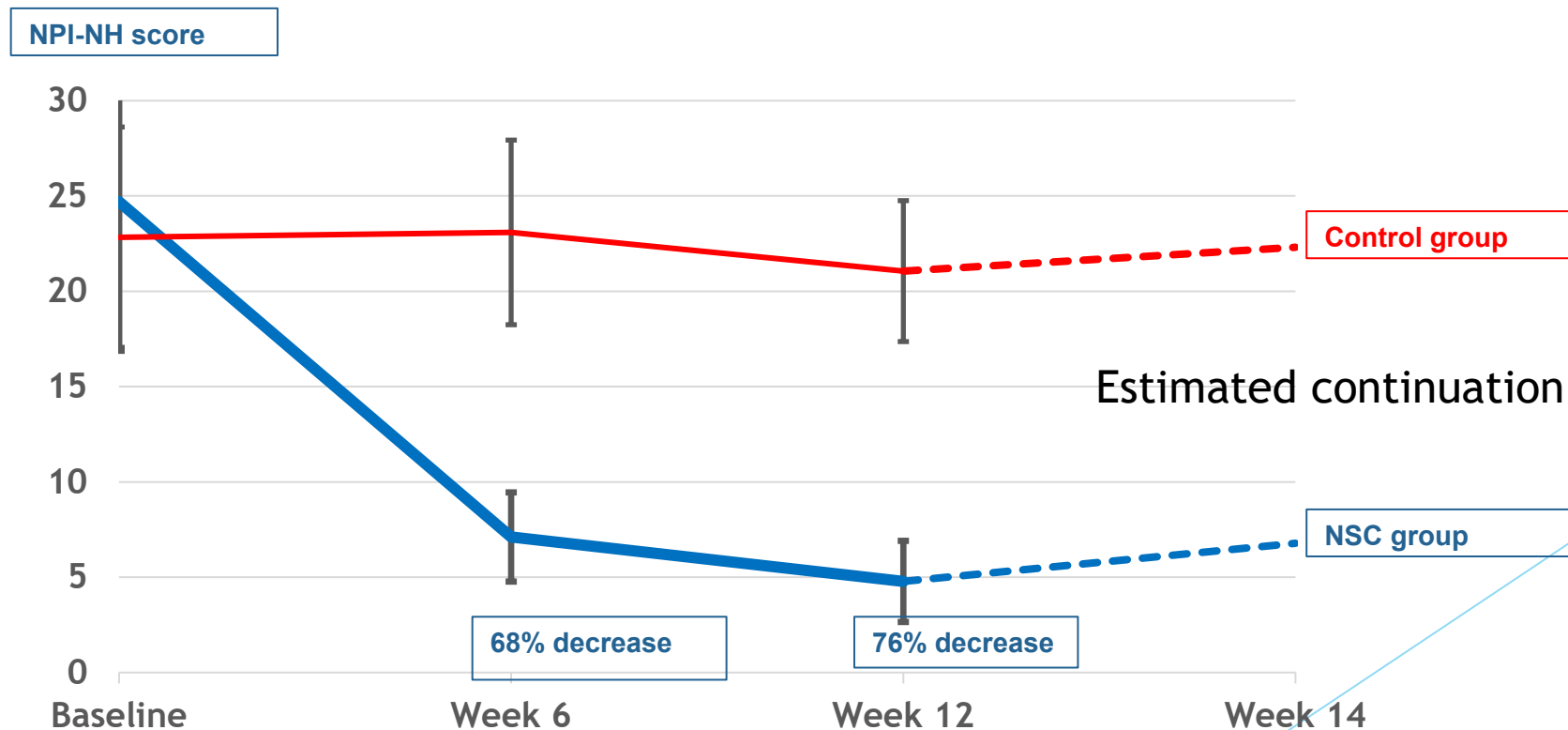


Does the effect continue after 12 weeks ?

Data after week 12 was not reported in the publication - but:

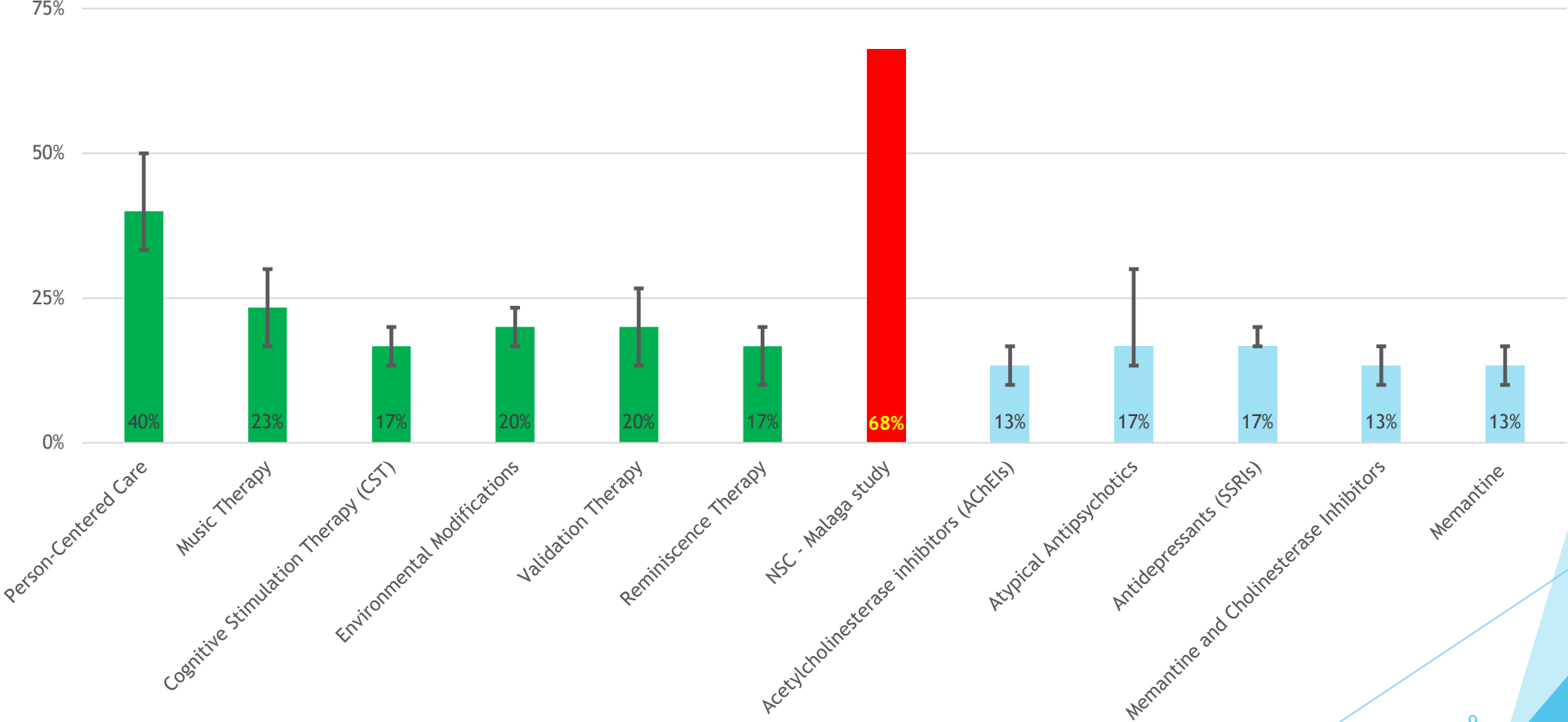
- *There were no statistically significant differences in each of these variables when comparing mean scores at Time 2 and Time 3 (Table 3)*

Preliminary data suggest continuation of effect 2 weeks after discontinuation of the NSC intervention as stipulated below



NSC Efficacy Relative to other Intervention Studies

Reduction in NPI Score
Mean, Min and Max - in Pct of Initial Score



Non-Pharmacological Interventions

Pharmacological Interventions

Discussion

▶ Clinical Interpretation of Study Results

- ▶ Use of the Nordic Sensi® Chair in 12 weeks significantly reduced BPSD symptoms, particularly agitation and irritability
- ▶ Data suggest a reduction in BSPD score about 76 % of start value after 12 weeks.
- ▶ **This is a substantial reduction in NPI-NH scores. No pharmacological or other intervention has published as high efficacy on BPSD reduction**

▶ Possible Economical Implications

- ▶ On average a Swedish PwD in a care facility has an average NPI-NH score of about 20. Interpretation of the Malaga study results suggest a reduction to appr. 5.
- ▶ Some data assess an increase in 1 point in NPI-NH score increase the annual cost with about 250\$
- ▶ It would be expected that a reduction in NPI-NH scores with more than 10 points would give substantial savings in care cost.

Conclusions

The reduction in overall BPSD along with decreased caregiver occupational disruptiveness represent encouraging findings, adding to the potential of non-pharmacological interventions for nursing home residents living with dementia.

In other words

The study gives objective, clinical evidence that:

- ▶ Use of the Nordic Sensi® Chair in 12 weeks significantly and substantially reduced BPSD symptoms, particularly agitation and irritability
- ▶ This should improve the quality of life for persons with dementia
- ▶ Patients get less agitated and irritable and therefore are less disturbing to caregivers
- ▶ The use of Nordic Sensi Chair also decreased caregiver occupational disruptiveness, suggesting saved caregiver resources