The Effect of Snoezelen on Psychotropic Drug Use of Nursing Home Residents with Dementia

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Abstract

The purpose of this study was to discover if Snoezelen, an approach that provides sensory stimulation in a relaxing environment, has an effect on the level of psychotropic medication taken by nursing home residents with dementia. There were 3 groups of 22 participants in the study, each matched on Resident Classification Scale (RCS) category (1 or 2), and age. The 'high' Snoezelen group participated in at least 3 one-to-one Snoezelen sessions per week (over the previous 4 weeks), 'low' Snoezelen 1 or 2 per week, and there was a control group ('no' Snoezelen). Information on Snoezelen sessions, diagnoses and medications were obtained from nursing home charts. Chi-square analysis found the effect of Snoezelen on neuroleptic (antipsychotic) use significant, as a smaller percentage of the 'high' group took them. The effect on hypnotic/sedative/anxiolytic use was not significant and antidepressant use was the same for the 3 groups. Significant results were found for the effect of Snoezelen on multiple psychotropic use. A significantly larger percentage of the 'high' Snoezelen group took neither neuroleptic medication nor hypnotic/sedative/anxiolytic medication. The effect of Snoezelen on the taking of both neuroleptic *and* hypnotic/sedative/anxiolytic medications was significant. The percentages of participants in 'high' and 'low' Snoezelen groups taking both psychotropics were significantly smaller.

Introduction

In this study we evaluated the effect of Snoezelen therapy on the use of psychotropic medication for nursing home residents with dementia.

Psychotropic medications, particularly neuroleptics, are frequently used in Australia to soothe behaviours arising from dementia, such as agitation, wandering, loud verbal and physical aggression. However the use of these medications has been shown to have detrimental outcomes in the elderly with extrapyramidal side effects such as acute dystonia, parkinsonism and tardive dyskinesia (Fitzsimons, 1994). Alternative methods of dealing with problematic behaviours amongst nursing home residents with dementia would greatly assist their and their carer's well-being.

Snoezelen therapy is an approach used in nursing homes to provide sensory stimulation to elderly people with dementia and was developed in Holland at the Haarendael Institution for people with intellectual disabilities (Hulsegge & Verheul, 1987).

A typical session in a nursing home proceeds with a carer accompanying a resident into a comfortably furnished, dimly lit room where attractive lighting effects, relaxing music, gentle aromas and varied tactile experiences combine to create a calm haven they both share. The carer facilitates the experience for the resident, ensuring that the session unfolds in a gentle way according to the resident's preferences. During the shared sensory encounter, the carer relies on the resident's indications (which may be nonverbal) in order to fulfil the resident's expectation of pleasure.

Moffat, Baker, Pinkney, Garside, and Freeman (1993) conducted the first research study using Snoezelen with older people at King's Park Community Hospital in Bournemouth (UK). They looked at the effect of Snoezelen on twelve clients with dementia and results showed an increase in happiness and engagement following sessions and an increase in clients remaining calm throughout sessions. Pinkney and Baker (1994) reported on qualitative aspects of the project development for the elderly with mental health problems and credited the approach with promoting the development of a therapeutic relationship incorporating trust, sharing and equality. They also contended that Snoezelen provided clients with 'quality' time.

Hope (1997) conducted a qualitative evaluation of the influence of a multi-sensory room in an elderly care psychiatric unit using a package developed for the purpose. He recommended that active steps be taken to promote the use of such rooms to nurses caring for older people with dementia because of the value of such environments in facilitating communication and

relaxation and thus enhancing the nurse–resident relationship. He envisaged their use as a means of influencing the culture of care away from just the physical aspects, and towards a wholistic valuing of personhood.

Holtkamp, Kragt, van Dongen, van Rossum, and Salentijn, (1997) undertook a study with 17 elderly people with advanced dementia at Bernadus Nursing Home in Amsterdam. They used a randomised crossover design to investigate the effect of Snoezelen on their well-being with living room activity as the control condition. The presence or absence of behavioural problems provided the measure for well-being. During the Snoezelen activity residents exhibited significantly less behaviour problems than during the living room activity, but whereas the Snoezelen activity was one to one, the living room activity was not; therefore the living room activity was not a comparable control condition.

Cox, Burns, and Plant (2000) investigated the responses of 24 residents with dementia to a Snoezelen room, a sensory garden and a living room, all with one to one care for each participant. All three environments induced a quantifiable increase in positive affect, however, it was in the qualitative nature of the affect that a difference was observed. The carers (who were nurses) emphasised that while in the Snoezelen room, agitated residents became calm, withdrawn residents more responsive, and those who generally slept in their chairs were enlivened by the experience. They believed residents left the room with a feeling of happiness that stayed with them.

Van Diepen et al., (2002) recently conducted a pilot study aimed to develop an approach to gauge the effectiveness of Snoezelen in comparison to Reminiscence Therapy in reducing agitation in patients with dementia. Reminiscence was chosen as the control intervention because it is a well established activity suitable for people at all stages of dementia, and is not task orientated. In order to control for staff attention it was carried out one-to-one rather than the usual group format. The authors declared that they were encouraged by the effects of Snoezelen on agitated patients.

Research reported so far investigating the benefits of Snoezelen has been hampered by the problems of use of subjective measures only, that many of the positive responses of people to the Snoezelen approach are difficult to measure, and variables are hard to control in the population of people in nursing homes with dementia. There are indications however that Snoezelen has the ability to soothe people through its provision of sensory stimulation and developing of a sharing relationship and have a positive effect on the same symptoms and behaviours as those targeted by psychotropic medications (Baker, Dowling, Wareing, Dawson, & Assey, 1997; Holtkamp et al., 1997; Moffat et al., 1993) without the side effects.

In this study, we expected that the combined effect of Snoezelen on the behaviour of the residents, and its influence on the culture of the nursing home, would be indicated by a reduction in the use of psychotropic drugs in those nursing homes that use Snoezelen regularly with their residents with dementia. The study compared 3 groups: 'No', 'Low' and 'High' Snoezelen to assess the effect of Snoezelen on psychotropic medication. The rationale for the separation of 'High' and 'Low' groups was that, whilst the recommended levels of Snoezelen use for a therapeutic effect is reported to be three sessions per week (Baker et al., 1997), beneficial effects have also been found at less than the recommended usage levels (Cox et al., 2000).

Psychotropic medication was measured in terms of the chlorpromazine-equivalent total dosage of neuroleptic or antipsychotic medications, diazepam-equivalent total dosage of hypnotic medications and dosage of antidepressant medications, taken during the collection day. (Note: the regular medication did not vary from day-to-day for these residents).

Method

Design

A quasi-experimental design was used with three groups matched on variables other than Snoezelen likely to affect medication use (age, and care level). The criterion for inclusion in the 'high' group, was participation in at least three 20 minute sessions of Snoezelen per week in the previous four weeks. Residents with less than this level of Snoezelen but some exposure to Snoezelen in the previous four weeks were included in the 'low'group. Residents with no exposure to Snoezelen comprised the 'no' group.

Participants

Participants came from 9 not for profit nursing homes in Sydney, Brisbane and Perth. At each home data was collected for every resident who had a diagnosis of dementia and were category 1, or 2 on the Resident Classification Scale (RCS) (The Documentation and Accountability Manual, 2001). No distinction was made in the type of dementia of the residents. In many cases there were other serious health issues as could be expected for this population.

Data were collected for 159 participants. Participants from a particular institution were only assigned to one of the conditions, so the groups were independent.

Participants for the 'high' group were scarce due to staffing and time constraints, and the fact that some nursing homes omitted to record Snoezelen sessions. After collecting data in 9 nursing homes, only 22 cases

could be allocated to the 'high' group. Thus the final sample included three independent groups each with 22 participants matched on age, and RCS category. The mean age of the sample of 66 was 86.6 (SD = 6.3, Range 74 - 102). Matching on gender was not possible, however analysis of variance found no significant differences between males and females in doses of neuroleptics or hypnotics. The 'no' group had 6 males (with 16 females), the 'low' group 3 males (19 females) and the 'high' group 6 males (16 females).

Materials and Procedure

Participants were recruited through contact with Directors of Care of Nursing Homes in Sydney, Brisbane and Perth. The research proposal, participant information sheet and consent form were provided for the director of care, doctor of each participating resident and the resident's next of kin. Participants were only included if consent was obtained from all three sources.

The RCS was used to match participants. To be eligible for the study residents had to be medically diagnosed with dementia and classified as category 1, or 2 on the RCS. The function of the RCS rating in this project was to draw participants from the categories needing the most care.

Medication name, dose and frequency of (regular) use of medication during the previous 24 hours were obtained from each participant's medication chart.

Data on use of any medications that were classified by MIMS (reference) as sedatives/hypnotics, anxiolytic agents, antipsychotic agents and antidepressants were retained for analysis.

The equivalence tables from the third edition of the Psychotropic Drug Guidelines were used to calculate chlorpromazine equivalent doses for the antipsychotic drugs and diazepam equivalent doses for the benzodiazepine/hypnotic/anxiolytic agents. Chlorpromazine equivalence for olanzapine, brand name Zyprexa, (an antipsychotic or neuroleptic medication) became available after the guidelines were published, but the manufacturer and research pharmacists agreed that 2 – 3mg of olanzapine is equivalent to 100mg chlorpromazine.

Data on the participant's age, gender, diagnosis, RCS level and participation in Snoezelen sessions were sourced from the Personal Care Plans, Progress Notes or Medical Charts, depending on the recording protocols used in each nursing home. At each home data were collected for every resident who had a diagnosis of dementia and were category 1, or 2 on the RCS.

Results

The data for each of the three groups included a number of participants who took no psychotropic medication at all, and therefore it was not possible to use parametric inferential statistics for analysis. The neuroleptic (or antipsychotic) medications were converted arithmetically to chlorpromazine equivalent amounts, and the hypnotic (including sedative and anxiolytic) medications, to diazepam equivalent amounts in milligrams, taken over 24 hours. To prepare the data for chi-square analysis medication amounts were converted to discrete variables based on whether participants took that type of medication (neuroleptic, hypnotic or antidepressant) or not. Table 1 reports the percentage of participants in each group taking each type of psychotropic medication.

Table 1. Percentage of Participants using the types of Psychotropic Medication.

Group	N	H	A
High Snoezelen	18.2%	22.7%	27.3%
Low Snoezelen	50.0%	22.7%	27.3%
No Snoezelen	54.5%	36.4%	27.3%

Note. N=neuroleptics; H=hypnotics; A=antidepressants.

It can be seen from the table that the 'high' group had fewer participants on neuroleptic medication compared to the other groups and both Snoezelen groups used less hypnotics than the 'no' group. Antidepressant use was the same for all the groups. The effect of Snoezelen on neuroleptic (antipsychotic) medication was statistically significant, $X^2(2, N = 66) = 7.15, p < .05$. There was no significant effect for hypnotics or antidepressants.

Chi-square analysis was used to gauge if the groups differed in the number of categories of psychotropic medications they took. This was to give a perspective on whether participants took a combination of psychotropic medications rather than one type. Table 2 shows that both Snoezelen groups had lower use of both drug categories.

Table 2. Percentage of Participants in each Group on Neither Neuroleptic, Nor Hypnotic Medication, Either One or the Other, or Both Neuroleptic and Hypnotic Medication.

Group	Neither	N or H	N & H
High Snoezelen	63.6%	31.8%	4.5%
Low Snoezelen	31.8%	63.6%	4.5%
No Snoezelen	27.3%	36.4%	18.2%

Note. N=neuroleptics; H=hypnotics.

Chi-square analysis revealed the effect of Snoezelen on taking both neuroleptic and hypnotic medication was statistically significant, $X^2 (4, N = 66) = 9.59, p < .05$.

Chi-square analysis including antidepressant medication along with neuroleptic and hypnotic

medication was tested to see if there were differences in the number of categories used (no psychotropic, one psychotropic or two or more) between the 3 groups, however no significant effect was found.

Additional post hoc analyses were performed. A Chi-square test for relatedness or independence was conducted using data collected at the only nursing home that had participants in all three conditions: 'high', 'low' and 'no' Snoezelen. The participants for the 'high' group for the study all came from this nursing home. This nursing home was unusual in that it had a philosophy of using Snoezelen with all residents with dementia, and even some of those residents included in the 'no' category for this analysis participated in daily group Snoezelen. Despite this fact they met the study's criteria for 'no' Snoezelen, as sessions were defined as one-to-one Snoezelen, but could not be included in the study due to the independence of groups requirement. In the analysis, neither the effect of Snoezelen on neuroleptic medication nor on hypnotic medication, were significant Lack of power was a problem for the foregoing post hoc analyses as they were limited by only 40 participants in the sample (22 'high'; 8 'low'; and 10 'no' Snoezelen) and therefore only had sufficient power to reveal a large effect size.

The nursing home with a Snoezelen philosophy for all their residents with dementia, appeared to have a lower than usual level of neuroleptic and hypnotic usage so we conducted a one-way between groups analysis of variance (ANOVA) to compare all participants from that home (n = 40) and the participants from other nursing homes (n = 44) for both medications. Chlorpromazine use was significantly different, F (1, 82) = 7.96, $p < .05$. Diazepam use was not significantly different, F (1, 82) = 2.59, $p > .05$. Table 3 provides the descriptive statistics and statistical significance from the analysis.

Table 3. Comparison of mean doses of medication taken in the Snoezelen nursing home, and other nursing homes, with results of analyses of variance

Group	(N)	Mean (SD)	SE	Range	F	Significance
Chlorpromazine						
Nursing Homes	(n=40)	15.00mg (39.42)	6.23	0 - 200mg	7.96	$p < .05$
Others	(n=44)	73.35mg (125.23)	18.88	0 - 600mg		
Diazepam						
Nursing Homes	(n=40)	0.94mg (1.92)	0.30	0 - 5mg	2.59	$p > .05$
Others	(n=44)	1.93mg (3.45)	0.52	0 - 15mg		

As can be seen from the table the mean amounts for the nursing home that had a pervasive Snoezelen philosophy were lower for both chlorpromazine and diazepam, and there was less variation in doses.

Discussion

The hypothesis that nursing home residents with dementia, who received high exposure to Snoezelen, would take significantly less psychotropic medication than residents receiving low exposure or no exposure to Snoezelen was partially supported by the finding that a significantly lower proportion of the 'high' group took neuroleptic medication than the other 2 groups (refer Table 1). A difference between the proportions of people who took neither neuroleptic nor hypnotic medication was significant. A significant difference was also found for multiple drug-category use, with both the 'high' and 'low' groups having a much lower percentage of participants taking both neuroleptic and hypnotics (see Table 2). The hypothesis was not supported regarding antidepressant medication however, as all 3 groups had the same percentage of participants who took antidepressants.

Draper et al., (2001) found that a chart diagnosis of dementia and activity disturbance significantly predicted taking regular neuroleptics in nursing homes. They also reported that residents on neuroleptics had higher aggressiveness scores. If these are the behaviours most associated with neuroleptic prescription, and research has indicated that Snoezelen can have a positive effect on these same behaviours, (Baker et al., 1997) the result reported in this study that the 'high' group had a significantly lower percentage of participants that took neuroleptics is consistent with that research.

The results of this study suggest that the minimum level of Snoezelen to have the effect of reducing neuroleptics significantly is 3 one-to-one sessions per week, the criteria for the 'high' Snoezelen group and the level of Snoezelen use proscribed in the literature (Baker et al., 1997). The number of individual sessions received by participants in the 'high' Snoezelen group ranged from 3 to 7 per week (mean = 5) and most attended group Snoezelen each afternoon. The nursing home from which the 'high' group was obtained has been committed to the Snoezelen philosophy for 6 years and all staff facilitate sessions for residents in the

Snoezelen room. Relatives of the residents are also encouraged to use the room.

The results were unclear on the effect of Snoezelen on Hypnotics, as hypothesis testing was not significant when hypnotic usage in the 3 groups was compared.

However, when hypnotics were combined with neuroleptic use in a 'neither of them', 'one of them' or 'both neuroleptic and hypnotic medication' in a chi-square test, the effect of Snoezelen was significant. The proportion of participants taking both types of medication was very low for both Snoezelen groups. The effect of Snoezelen on multiple psychotropic drug taking for people with dementia suggests that even a very low exposure to Snoezelen may have an effect on reducing the number of different psychotropic drugs types (the 'low' group were receiving 1 or 2 one-to-one sessions a week) as suggested by Cox et al., (2000). A reduction in multiple prescriptions of psychotropic drugs has the potential of delivering significant health outcomes for people with dementia.

The post hoc analysis of data from the single nursing home (40 participants) with a total commitment to Snoezelen therapy, found significantly less use neuroleptic medication when compared to the 44 participants from the 'low' and 'no' groups. Although some of the residents were classified as 'no Snoezelen,' most of them participated in a group Snoezelen session every afternoon (7 days a week). During this session an individual's aromatherapy spritzers or lotions would be applied in an atmosphere of communal peace and comfort. When visiting the nursing home during data collection, the first author was privileged to observe one of these sessions. All the residents sat around a dim lounge area with the curtains fully closed in the afternoon. There was relaxing music playing, a solar projected image playing on the wall and 2 staff members tending to individuals with their spritzers and lotions. One gentleman sat for about ten minutes and then left, everyone else appeared content to stay. For a group session like that to work the majority of residents need to have had individual sessions, and at this home 14 residents had daily individual sessions (5 residents chose not to participate in Snoezelen, 3 had only group Snoezelen, and 18 had individual as well as group Snoezelen). This was made possible by the whole staff participating in Snoezelen, even the Director of Nursing took residents into the Snoezelen room. Consequently the whole nursing home was contaminated by the prevailing Snoezelen philosophy. Therefore it was not surprising that the residents at that nursing home had an overall low use of psychotropics and there was no significant difference found when the 3 groups were culled from that nursing homes' data and compared.

When the neuroleptic and hypnotic use by residents with dementia from the nursing home with the Snoezelen philosophy, were compared with the other participants in the study, chlorpromazine equivalent use (neuroleptic/antipsychotic medication) was significantly lower. Diazepam equivalent (hypnotic/sedative/anxiolytic medication) usage was not significantly different.

These results are consistent with the other results from our study that found fewer participants in the 'high' group took neuroleptics than did participants in the other two groups.

Olanzapine doses were higher (in all nursing home data) than other neuroleptic medications, ranging from 100mg to 600mg of chlorpromazine equivalent, whereas other neuroleptics ranged from 10mg to 300mg chlorpromazine equivalent. When equivalence rates for olanzapine were checked, the first author was told people often receive higher doses of new medications (B. Draper, personal communication). It would be preferable in the future if interventions such as Snoezelen could become the first resort for behavioural problems for residents of nursing homes with dementia, rather than neuroleptic medications with their associated side effects, adverse events and fortunately rare permanent disability. For this to be achieved the political priorities for aged care would have to change and the focus be redirected to funding more staff, rather than the present insistence on individual rooms and bathrooms for residents. The priority needs to be human resources.

Although the use of a quasi-experimental design limits our ability to confirm that it was the Snoezelen therapy that produced the significant effects in this study, the matching on variables that would be expected to affect medication rates such as age, and care level means that this study provides good evidence for a positive effect of Snoezelen on problematic behaviours associated with dementia. Stronger evidence would have been possible with a larger sample size, however the low numbers of participants in the 'high' group was a limiting factor. Many homes often kept no record of Snoezelen sessions. The lack of recording would make it difficult within these homes to link behaviours to interventions, if there is no way of knowing if, or how many times, a particular resident has received an intervention. If the care taken with medication recording was also applied to other interventions, the impact of these interventions may be easier to ascertain

Snoezelen focuses on the whole person and this is a core value of the approach. This study has concentrated on one aspect of the effect of Snoezelen on people with dementia; the behaviours that result in psychotropic medication. It would be unfortunate if this research had a constrictive influence and turned Snoezelen research away from projects with more breadth. A variety of research projects that take into account the communication, relationship enhancing, empowerment,

and valuing aspects of the Snoezelen approach will best inform the practice of dementia care.

This study has provided an objective measure for the effects of Snoezelen on psychotropic medication use. The effect of Snoezelen on neuroleptic medication and multiple psychotropic use has been noticeable. Further research is necessary to see how this effect generalises into other nursing home environments.

References

Baker, R., Dowling, Z., Wareing, L. A., Dawson, J., & Assey, J. (1997) Snoezelen: its Long-Term and Short-Term Effects on Older People with Dementia. *British Journal of Occupational Therapy, 60*(5), 213-218.

Burns, I., Cox, H., & Plant, H. (2000). Leisure or therapeutics? Snoezelen and the care of older persons with dementia. *International Journal of Nursing Practice, 6,* 118-126.

Caswell, A., (Ed.) (2002). *MIMS Australia.* St Leonards: MediMedia

Commonwealth Department of Health and Ageing. (2001, July 1). Classification Appraisal. In *Residential Care Manual* (chap 5). Retrieved February 2, 2003, from http://www.health.gov.au/acc/manuals/rcm/contents/5classi2.htm

Cox, H., Burns, I., & Plant, H. (2000). *The impact of using multi-sensory environments as leisure activity on the wellbeing of residents and carers in an aged care facility.* (Report to the Alzheimer's and Associated Diseases Association of Australia). Geelong, Victoria: Deakin University, School of Nursing.

Draper, B., Brodaty, H., Low, L., Saab, D., Lie, D., Richards, R., & Paton, H. (2001). Use of psychotropics in Sydney nursing homes: associations with depression, psychosis, and behavioral disturbances *International Psychogeriatrics, 13*(1), 107-120.

Fitzsimons, K. (1994) Psychotropic medications in the elderly: Comparative studies. *Graylands Hospital Drug Bulletin, 4*(4), 1-4.

Holtkamp, C. C., Kragt, K., van Dongen, M.C., van Rossum, E., & Salentijn, C. (1997). Effect of Snoezelen on the behaviour of demented elderly. *Tijdschr Gerontol Geriatr, 28*(3), 124-128.

Hope, K. (1997). Using multi-sensory environments with older people with dementia. *Journal of Advanced Nursing, 25,* 780-785.

Hulsegge, J., & Verheul, A. (1987). *Snoezelen another world- a practical book of sensory experience environments for the mentally handicapped.* Chesterfield: Rompa.

Moffat, N., Barker, P., Pinkney, L., Garside, M., & Freeman, C. (1993). *Snoezelen an experience for people with dementia.* Chesterfield: Rompa.

Pinkney, L. (1997). A comparison of the Snoezelen environment and a music relaxation group on the mood and behaviour of patients with senile dementia. *British Journal of Occupational Therapy, 60*(5), 209-212.

van Diepan, E., Baillon, S. F., Redman, J., Rooke, N., Spencer, D.A., & Prettyman, R. (2002). A Pilot Study of the Psychological and Behavioural Effects of Snoezelen in Dementia. *British Journal of Occupational Therapy, 65*(2), 61-66.

Victorian Drug Usage Advisory Committee. (1995). *Psychotropic Drug Guidelines* (3rd Ed.). North Melbourne, Victoria: VMPF Therapeutics Committee.