

HWM Kwok 郭偉明
YF To 杜遠鳳
HF Sung 孫孝芳

The application of a multisensory Snoezelen room for people with learning disabilities — Hong Kong experience

香港智障人士應用多功能感官室的經驗

.....
In recent years there has been a considerable increase in the use of complementary therapies in the field of learning disabilities. This paper describes the use of a Snoezelen (multisensory) room for adults with learning disabilities in a psychiatric setting in Hong Kong. Theoretical and operational issues are discussed. The demographic and clinical data of a cohort of 96 patients who had used the room were reviewed. Rating forms were completed by their carers or staff at the end of the course to provide a subjective evaluation of the effectiveness of treatment. This is followed by three case reports. In view of the rising popularity of the multisensory room for people with learning disabilities, more research of the impact and therapeutic values is recommended.

利用輔助療法協助智障人士近年明顯增加。我們介紹本地使用多功能感官室 (Snoezelen room) 為智障成人進行精神科治療的經驗；並討論其理論和操作。本文總覽了 96 名使用多功能感官室的智障人士的個人及臨床數據，另附三個病例報告。療程結束後，由護理人員或照顧者填寫問卷，就該療程的效果作出主觀的評估。由於多功能感官室用於治療智障人士日漸普遍，我們建議對其影響及治療價值作更多深入的研究。

Introduction

Part of the history of mental handicap has been the search for a destigmatising terminology. The early 20th century terms were subsequently replaced by 'mental deficiency', 'mental subnormality', 'mental handicap', and 'mental retardation', which were deemed to be more appropriate. More recently, terms such as 'learning disability' (LD), 'developmental disability', and 'intellectual disability' are increasingly used in western countries. In this study, LD is used to refer to significantly subaverage general intelligence with concurrent deficits or impairments in adaptive functioning.

The idea of sensory stimulation for people with LDs is not new. It was one of Sequin's¹ teaching techniques for children with LDs as early as 1866. The literature shows that there has been a marked increase in the use of such activities to meet the complex needs of people with LDs during the past 15 years. Most of the studies adopted an applied behavioural analysis approach, while a smaller number used physiological measures.² Both the Whittington Hall Snoezelen Project³ and the study on the use of the Snoezelen at Limington House School⁴ indicated positive outcomes. Most of the subjects found that the Snoezelen programme was enjoyable and relaxing and there was an associated reduction in their challenging behaviours. A recent study by Lindsay et al⁵ to investigate the efficacy of four therapeutic treatment procedures for clients with profound LDs indicated that both Snoezelen and relaxation had a positive effect on concentration and seemed to be the most enjoyable therapies when compared with hand massage and active therapy.

Kwai Chung Hospital was fortunate to have received a donation to build a Snoezelen room in the Psychiatric Unit for Learning Disabilities. This paper

Key words:

Complementary therapies;
Hong Kong;
Mental retardation

關鍵詞：

輔助療法；
香港；
智力障礙

Hong Kong Med J 2003;9:122-6

Psychiatric Unit for Learning Disabilities,
Kwai Chung Hospital, 3-15 Kwai Chung
Hospital Road, Hong Kong
HWM Kwok, MRC Psych, FHKAM (Psychiatry)
YF To, MNur, RN (Psychiatry)
HF Sung, MBA, PDOT

Correspondence to: Dr HWM Kwok

aims to share the local experience of using this special facility in Hong Kong. A brief introduction of the Snoezelen will be presented, followed by a study of 96 patients who have used the room and three case reports.

What is a Snoezelen room?

The word 'Snoezelen' is a combination of two Dutch words, meaning 'sniffing' and 'dozing'. This refers to an environment consisting of pleasurable sensory experiences generated in an atmosphere of trust and relaxation. The Snoezelen room is also known as a multisensory room because, once inside, there are opportunities for stimulation of all the senses of vision, sound, smell, taste, touch, and vestibular experiences. The concept of Snoezelen is to adopt an enabling approach, which requires the carer to engage in warm interaction with the client in a non-directive way, giving plenty of opportunity for exploration in this environment.

Snoezelen was originally developed in the Netherlands in 1987 by Hulsege and Verheul⁶ to provide relaxation and leisure for people with profound LDs. The concept gained widespread popularity and carers discovered that Snoezelen was not only restricted to recreational use as they also noted some therapeutic effects. Rooms were subsequently built in hostels, special schools, hospitals, and day-care centres. Snoezelen was introduced to Hong Kong in 1997 and currently there are five such rooms in local public hospitals.

The Snoezelen concept

The Snoezelen concept is based on the belief that there are basic human needs:

- (1) to seek sensory stimulation;
- (2) to make sense of the world;
- (3) for relaxation; and
- (4) for enjoyment.

The concept assumes that if a person fails to fulfil these needs in the external world, attention will turn inwards, resulting in anxiety and possibly development of maladaptive behaviours such as self-injury, self-stimulation, and stereotypy.

People with LDs are living in a relatively sensory-deprived world because of their deficits in intellectual and social functioning. The Snoezelen works by providing a structured environment of multisensory input to fulfil their needs. The essence is to create a feeling of safety, novelty, and stimulation that is under the user's control.⁷ Such an environment will facilitate exploration and empowerment, and improve attention.

Durand and Carr⁸ proposed that self-injurious behaviours can be driven by four motives, one of which is a desire for sensory consequences. It is possible that self-injurious behaviours can be replaced by an alternative form of sensory input provided by the Snoezelen room. There

Functions of the Snoezelen room

1. Relaxation
2. Develop self-confidence
3. Achieve a sense of self-control
4. Encourage exploration and creative activities
5. Establish rapport with carers
6. Provide leisure and enjoyment
7. Promote choice
8. Improve attention span
9. Reduce challenging behaviours

are case studies reporting its effectiveness in the treatment of severe self-injurious behaviours in people with profound LDs.⁹ The hypothesis that sensory stimulation helps to maintain an optimal arousal level and thus reduces the need for self-stimulatory behaviour has been studied by Bonadonna.¹⁰ A group of adults with severe LDs received vestibular stimulation for 10 minutes each day, 5 days per week for 3 weeks. There was a statistically significant reduction of both the frequency and duration of their rocking behaviour and the treatment effect was found to last for up to 6 days after the stimulation was stopped. The functions of the Snoezelen room are summarised in the Box.

The Snoezelen room at Kwai Chung Hospital

The Snoezelen room (Figs 1 and 2) at Kwai Chung Hospital was established in 1998. It is located within the Psychiatric Unit for Learning Disabilities. The room is fully ventilated with cushioned floor and walls, and occupies a gross area of approximately 300 square feet. The room is equipped with more than HK\$300 000 of multisensory facilities, as described in Table 1.

The Psychiatric Unit for Learning Disabilities serves clients aged 16 years and older with documented LDs. Referrals are accepted from special schools, the Social Welfare Department, non-government organisations, paediatricians, psychiatrists, and family doctors.

An assessment session is arranged if the client has not been known to the Unit before. After exclusion of contraindications such as poorly controlled epilepsy, excessive hyperactivity, or extreme aggressiveness, a course consisting of four 1-hour sessions over 4 consecutive weeks will be provided by the multidisciplinary staff.

Few clients with LDs refuse to go into the room. Patients who do refuse usually have autism and tend to avoid all novel environments. For these patients, the therapist may need to allow them to first watch a session from outside. Sometimes, taking one or two pieces of equipment out of the room to work with the patient in the waiting area is necessary. Once a rapport is established and the patient shows an interest, he or she may enter the room and participate like the others.

At the end of the course, the carer is requested to fill in a rating form for evaluation and a feedback session will be



Fig 1. Snoezelen room

arranged at the out-patient clinic. Further sessions can be provided if the individual shows a good response to the treatment.

Evaluation of the effectiveness of a Snoezelen room

Methods

All patients referred to the Psychiatric Unit for Learning Disabilities for Snoezelen sessions during a period of 6 months were screened. Subjects who had attended at least one full course of Snoezelen were selected for inclusion into this study. Factors affecting the number of courses attended by patients included the carer’s perceived benefit of the treatment, the availability of persons to escort the patient, and the extent of interest demonstrated by the patient in the room. Ninety-six patients were included in the study.

Basic demographic and clinical profiles of the 96 patients were retrieved from the department database. A rating form based on literature review of the effectiveness of Snoezelen was designed as there is no standard instrument currently in use. Eight items were included in the questionnaire. The face validity was established among staff members, including psychiatrists, nurses, clinical psychologists, and occupational therapists. The primary carers were invited to rate the effectiveness of the Snoezelen room according to three options of “no effect”, “mild effect”, and



Fig 2. Patients in the Snoezelen room

“marked effect”. The rating was carried out within 1 week of the completion of each course by comparing the pre-treatment and post-treatment condition of the patient. Reminders were sent out to the carers if they did not return the rating form after 1 week. Statistical analysis was performed and the results were reported.

Results

The rating form was found to be easy to use because of the simple wording and the inclusion of both English and Chinese versions on the same sheet. The response rate from staff and carers was 100% and 81.6%, respectively.

Population characteristics

Ninety-six patients were recruited. This group included 65 (67.7%) in-patients and 31 (32.3%) out-patients. Their ages ranged from 16 to 60 years. Eighty-four (87.5%) patients were aged less than 45 years and 43 (44.8%) were aged

Table 1. A description of the equipment in the Snoezelen room

| Equipment | Description of activity |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Multi-colour bubble tube | A flood of air bubbles ascends in a tube of water that can change colour at the press of a switch |
| Revolving mirror ball and colour wheel | Produces colour spots on walls |
| Projector and effect wheels | Projects colour patterns and pictures onto walls and ceiling |
| Fibreoptic spray | Automatically changes colours |
| Catherine wheel | A wheel of moving lights whose pattern and speed can be changed by selection |
| Magic glow panel | Uses a cable pen to shine onto a fluorescent board to make it glow |
| Sound light wall unit | A large screen whose intensity of light will vary with the volume of sound input |
| Musical hopscotch pad | Jumping on different colour cushions will produce different notes or tunes |
| Tactile board | Tactile stimulation using common daily objects |
| Sensory ball | A large ball used for gross motor activities, providing tactile, vestibular, and kinaesthetic experiences |
| Bean bag chair and massage pillow | Comfortable and good support for the body, allowing relaxed positioning |
| Aroma diffuser | Diffuses essential oil into the room to produce various fragrances that may have a relaxing/pleasurable effect |

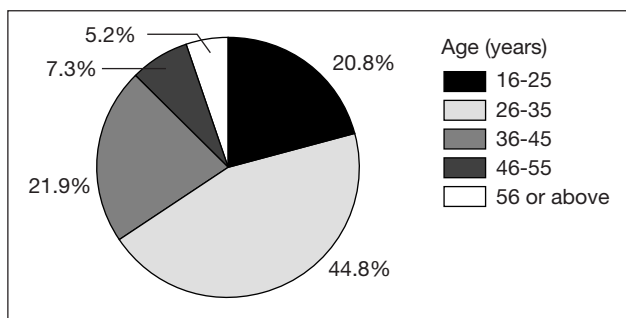


Fig 3. Range of ages

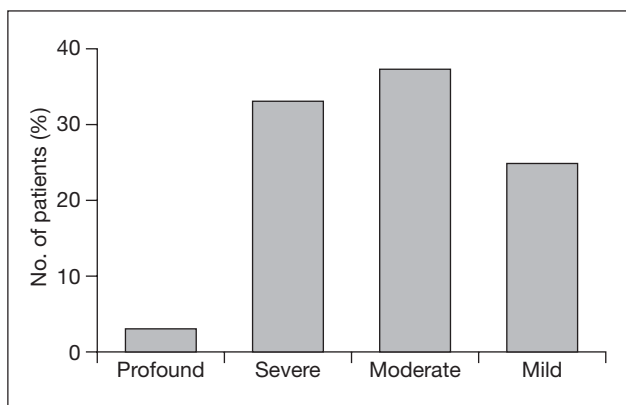


Fig 4. Grade of learning disability

between 26 and 35 years (Fig 3). Their intelligence levels ranged from profound- to mild-grade LDs—25% (n=24) had mild-grade, 37.5% (n=36) had moderate-grade, 33.3% (n=32) had severe-grade, and 4.2% (n=4) had profound-grade LDs (Fig 4). Nineteen (19.8%) patients had epilepsy. Concerning other co-existing disabilities, 36.5% (n=35) had no speech, 5.2% (n=5) had hearing problems, 3.1% (n=3) had mobility problems, and 3.1% (n=3) had visual problems. Five (5.2%) patients had a combination of these three conditions. Twenty-eight (29.2%) patients had a history of aggression to others, 31 (32.3%) had a history of self-injurious behaviour, and six (6.3%) had both conditions. The self-injurious behaviours included self-biting, skin-picking, and head banging. Forty-nine (51.0%) patients had a psychiatric disorder. The three most reported disorders were schizophrenia (n=13), pervasive developmental disorder (n=10), and unspecified non-organic psychotic disorder (n=10).

Approximately 60.0% (n=57) of patients received one full course in the Snoezelen room, and 10.4% (n=10)

attended two courses. The remaining 30% attended three or more courses. The effectiveness of the Snoezelen room is summarised in Table 2.

Case reports

Case 1

A 21-year-old man was living in a hostel and attending a day-care centre. He was diagnosed as having moderate-grade LDs. He walked slowly and had little speech. He was quiet and seldom engaged in social interaction with staff or peers. He was relatively passive and did not exhibit any challenging behaviour. The patient participated in 16 sessions in the Snoezelen room. His response to multisensory stimulation was good. He was relaxed throughout the sessions and enjoyed listening to music. He took the initiative to press the button of the interactive bubble tube. He also liked tactile stimulation. Observation from the staff in the hospital and feedback from his carer at the hostel reported that he showed progressive improvement in communication. He became more sociable and the speed of his movement also improved. He took more initiative when responding to instructions from his carers. Telephone follow-up after 10 months of treatment indicated that this patient had maintained the improvement.

Case 2

A 27-year-old man attended a day-care centre and lived in a hostel. He had severe-grade LDs with history of epilepsy and head banging. He enjoyed self-spinning and was fond of aligning toy cars. He muttered to himself and his speech was irrelevant at times. This patient took part in eight sessions of Snoezelen. He was rather passive to start with and he looked at his mother for approval of every action. He required a lot of prompting to make a selection of the facilities inside the room. He liked to play with the brush and glove for tactile stimulation. In the fifth, seventh, and eighth sessions, he took the initiative to communicate with others by establishing eye contact and touch. He also greeted his peers on one occasion. In the subsequent telephone follow-up, his mother and the staff of the hostel reported that he was more relaxed. His attention span had increased and he showed improvement in his abilities to choose and play. His self-muttering still persisted but he did smile more often. His head banging behaviour had reduced from once or twice a week to approximately once per month.

Table 2. Summary of the effectiveness of Snoezelen (n=96)

| Effectiveness for patients | Marked effect (a) No. of patients (%) | Mild effect (b) No. of patients (%) | No effect (c) No. of patients (%) | Carers reporting Snoezelen to be effective (a + b) No. (%) |
|-------------------------------------------------|------------------------------------------|----------------------------------------|--------------------------------------|---------------------------------------------------------------|
| Function | | | | |
| Relaxation/reduction of anxiety | 14.6 | 40.6 | 44.8 | 53 (55.2) |
| Increased motivation for learning | 4.2 | 26.0 | 69.8 | 29 (30.2) |
| Increased self-confidence | 6.3 | 12.5 | 77.1 | 18 (18.8) |
| Improvement of rapport/communication with carer | 5.2 | 45.8 | 49.0 | 49 (51.0) |
| Leisure/enjoyment | 24.0 | 38.5 | 37.5 | 60 (62.5) |
| Increased attention/concentration | 5.2 | 31.3 | 63.5 | 35 (36.5) |
| Decreased aggression (n=28) | 10.7 | 10.7 | 78.6 | 6 (21.4) |
| Decreased self-injurious behaviour (n=31) | 22.6 | 35.5 | 41.9 | 18 (58.1) |

Case 3

A 47-year-old woman was a resident of the hostel and attended a day-care centre. She had Parkinson's disease and severe-grade LDs. She was stiff with a high muscle tone. Her eye traction was poor and her gaze was 'fixed' most of the time. She was easily distracted with a short attention span. She usually held onto the staff. She completed three courses of sensory stimulation treatment and became interested in looking at herself and touching her image in the mirror. She smiled heartily when she felt the vibration and warmth emitted from the bubble tube. She also enjoyed watching the colour change of the optic fibres. She felt more relaxed with less rigidity in her limbs. At the end of the third course, she smiled more often and her eye tracking had improved in both vertical and horizontal directions. She maintained appropriate eye contact with staff and her concentration span was also increased.

Discussion

From the results of this observational study, the most prominent effects of the Snoezelen as reported by carers were found in leisure (62.5%), relaxation (55.2%), improved rapport (51.0%), and reduction of self-injurious behaviour (58.1%). By capturing sensations, the Snoezelen room facilitates a sense of well-being in patients whose emotions may not be easily accepted in reality.¹¹ The 'enabling' and 'non-directive' approach poses no stress for patients, so they can freely perceive the stimulations and explore the room. Such experiences are totally different from those of their daily lives, which may explain why patients with LDs appear cheerful and relaxed inside the room. Meanwhile, in this pleasant atmosphere, the interaction between patients and their carers is usually positive and facilitates rapport building.

The therapeutic effect of reducing challenging behaviours has already been explained. However, this study shows that the effect on self-injurious behaviour is far greater than on aggression towards others. The reason is not known but can be partly explained by the concepts of arousal and attention. Those patients who are easily overwhelmed in an under- or over-stimulating environment may seek compensation for modulating arousal and maintaining homeostasis by self-injurious behaviours such as hand-biting.^{12,13} Placement of clients in a Snoezelen room with controlled sensory input will benefit the client in adjusting the arousal level. On the other hand, aggression towards other people is a more complicated issue than injury to one's self and may involve more psychological and environmental factors that cannot be ameliorated by Snoezelen alone.

The rating scale used in this study was designed with the aim of collecting opinions from carers about the effectiveness of sensory stimulation and should be regarded as a preliminary step in the systematic evaluation of this form of therapy. The form was not blinded to the rater and has not been tested for parameters such as specificity or sensitivity.

Further documentation of the validity and reliability are also required, and these are the limitations of this study need to be acknowledged.

Conclusion

Snoezelen is a form of complementary therapy that is becoming increasingly popular in the field of LD. The concept provides an opportunity to improve patient care through the use of appropriate sensory stimulation. The Snoezelen creates an atmosphere of warmth, trust, and relaxation, and provides scope for exploration, discovery, and learning. Although the carers and staff often observed some therapeutic effectiveness in their clients after attending the Snoezelen room, it is not the purpose of this paper to test this hypothesis. Systematic evaluation of the Snoezelen room using well-developed research methodology is needed to assess its efficacy. Development of a clearer theoretical basis for this approach is also necessary. In particular, it will be interesting to look at the effect of the different equipment, the type of patients who will benefit most from such sensory stimulation, and the long-term impact of the Snoezelen on the overall mental state and social functioning of people with LDs.

References

1. Sequin E. Idiocy and its treatment by the physiological method. New York: Kelley; reprinted in 1971; originally published in 1866.
2. Hogg J, Cavet J, Lambe L, Smeddle M. The use of 'Snoezelen' as multisensory stimulation with people with intellectual disabilities: a review of the research. *Res Dev Disabil* 2001;22:353-72.
3. Hutchinson R. "The Whittington Hall Snoezelen Project". North Derbyshire Health Authority; 1991.
4. Bunsen de A. A study in the use and implications of the Snoezelen resource at Limington House School. In: Hutchinson R, Kewin J, editors. *Sensations and disability*. London: Rompa; 1994:138-45.
5. Lindsay WR, Pitcaithly D, Geelen N, Buntin L, Broxholme S, Ashby M. A comparison of the effects of four therapy procedures on concentration and responsiveness in people with profound learning disabilities. *J Intellect Disabil Res* 1997;41:201-7.
6. Hulsege J, Verheul A. Snoezelen, another world. Chesterfield: Rompa; 1987.
7. Ashby M, Lindsay WR, Pitcaithly D, Broxholme S, Geelen N. Snoezelen: its effects on concentration and responsiveness in people with profound multiple handicaps. *B J Occup Ther* 1995;58:303-7.
8. Durand VM, Carr EG. Self-injurious behaviour: motivating conditions and guidelines for treatment. *School Psychol Rev* 1985;14:171-6.
9. Withers PS, Ensum I. Successful treatment of severe self injury, incorporating the use of DRO, a snoezelen room and orientation cues. *Br J Learn Disabil* 1995;23:164-7.
10. Bonadonna R. Effects of a vestibular stimulation program on stereotypic rocking behaviour. In: Huebner RA, editor. *Autism—a sensorimotor approach to management*. Maryland: Aspen Publishers Inc; 2001:151.
11. Hutchinson R. Sensory environments and experiences—some ideas for applications. In: Hutchinson R, Kewin J, editors. *Sensations and disability*. London: Rompa; 1994.
12. Berkson G. Feedback and control in the development of abnormal stereotyped behaviors. In: Sprague R, Newell K, editors. *Stereotyped movements: brain and behavior relationships*. Washington, DC: American Psychological Association; 1996:3-15.
13. Guess D, Carr E. Emergence and maintenance of stereotypy and self-injury. *Am J Ment Retard* 1991;96:299-319.