The Relaxation Effect of Multisensory Room (MSR) on Severe Intellectual Disabled Adult in Care & Attention Home: A Single Case Study

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1st June, 2017

Introduction

- Snoezelen: originated in Holland;
- aimed to induce relaxation and leisure environment;
- derived from two Dutch words “Snuffelen” to sniff and
- “doezelen” to relax;
- promoted the sensation of relaxation (Hulsegge & Verheul,
- 1987).

- Multisensory Room (MSR): Snoezelen concept incorporated;
- collection of devices stimulate the senses by means of light, sound, touch and smell;
- aimed to offer stimulating or relaxing
- experience (Mount & Cavet, 1995).

- Relaxation beaviour: defined as overt behaiour such as slow regular breathing, jaw dropped, feet apart, absence of swallowing, no restless movement of eyes, fingers or other body parts (Schilling & Poppen, 1983).

Figure 1: MSR in Oi Wah Home of Fu Hong Society

Figure 2: MSR with infinity display and bubble tube operated

Literature Review

- Exploratory study (N=4, severe mental handicapped adults, Botley Park Resource Centre) towards any observable change in behaviour (e.g. staff interaction, calm, pleasure); there was apparent difference of the four participants between the villa and multisensory room (Long & Haig, 1992).

- Study (N=8, profound learning disability, hospital) on concentration (e.g. no. of meaningful movement on performing shape board) and responsiveness (e.g. enjoyment, relaxation, comfort and general interest), seven participants showed improvement on responsiveness and six participants showed moderate improvement in concentration (Ashby, Lindsay, Pitcaithly, Broxholme & Geelen, 1995).

Literature Review

- Study (N=8, profound learning disability, hospital) on comparing four therapy (i.e. Relaxation therapy, Hand massage, Active therapy and Snoezelen) on concentration and responsiveness, the results supported that Snoezelen ($t=2.4$; $p<0.05$) and relaxation therapy ($t=3.2$; $p<0.02$) had significant effect on concentration (Lindsay, Pitcaithly, Geelen, Buntin, Broxholme & Ashby, 1997).
- Single case study (N=1, severe learning disability with autism, staff-supported residence) on relaxation, 10 items behaviour relaxation rating scale (BRS) was adopted, the results were significant at $p<0.05$ (Slevin & Mcclelland, 1999).

Literature Review

- Experimental study (N=4, profound mental retardation, developmental centre) on stereotypic behaviour (e.g. body rocking, body swaying, picking) and engagement (e.g. watching television, comply request of staff, play puzzles or board game); reduction in stereotypic behaviour and increase in engagement compared living room with MSR; positive effect did not carry over to the living room (Cuvo, May & Post, 2001).
- A questionnaire for primary carers (N=96, mild to profound learning disability, psychiatric hospital); most prominent effects in leisure (62.5%), relaxation (55.2%), improved rapport (51%), reduction of self-injuries behaviour (58.1%) (Kwok, To & Sung, 2003)

Purposes

- To investigate the relaxation effect of MSR towards a selected resident in Care and Attention Home.
- Hypothesis 1: After the MSR intervention sessions, the relaxation behaviour of the severe intellectual disabled adult will be improved as measured by Behavioural Relaxation Scale (BRS);
- Hypothesis 2: After the MSR intervention sessions, the relaxation behaviour of the severe intellectual disabled adult will be improved when compared with that of the non-intervention sessions as measured by the Behavioural Relaxation Scale (BRS).

Methodology

- Design: A single case study; measurements before and after the MSR intervention sessions and non-intervention sessions of the same participant.
- B X A MSR Intervention sessions
- B — A Non Intervention sessions
- Sampling: inclusion criteria: (1) easily agitated without obvious reason; (2) settle inside the MSR; (3) relaxation behaviour could be observed by Behavioural Relaxation Scale (BRS).
- Intervention: MSR around 350 square feet; twice per week; 40 minutes each session; lasted for six months; first 20 minutes on rocking chair with vibration cushion; another 20 minutes on cubic sofa with massage mattress and ball blanket; Lavender essential oil; music and visual stimuli simultaneously.

Figure 3: First 20 minutes on rocking chair with vibration cushion

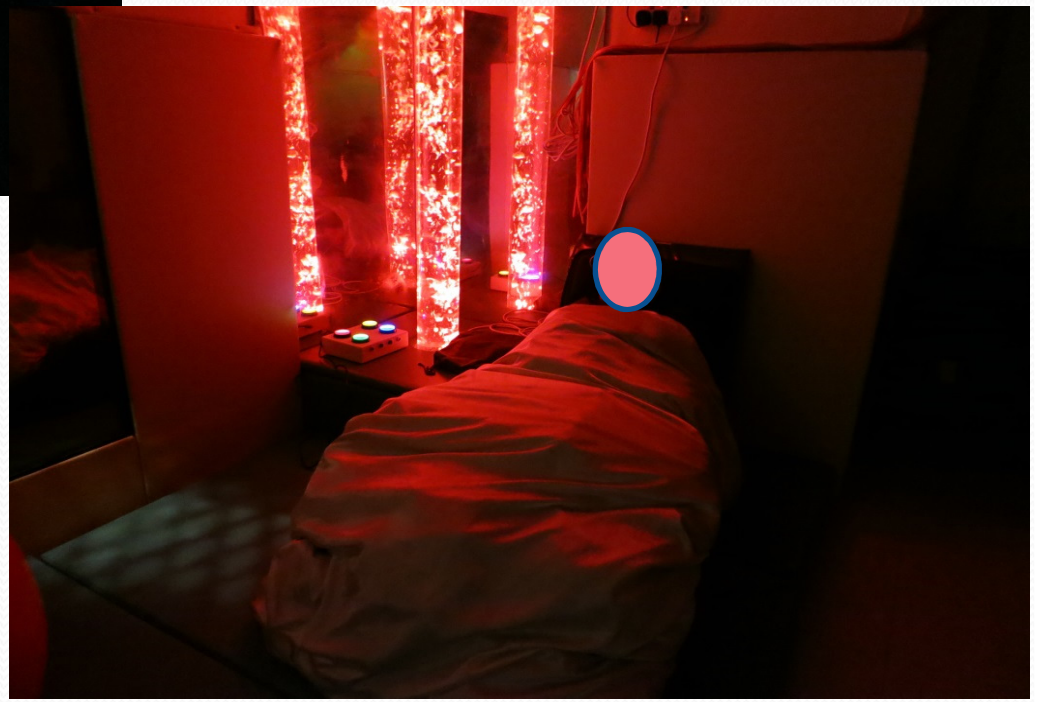

Figure 4: Another 20 minutes on cubic sofa with massage mattress and ball blanket

Methodology

- Outcome measurement: Behavioural Relaxation Scale (BRS) (Schilling & Poppen, 1983) was taken at 1:30 p.m. and 2:30 p.m. by a front-line worker, one minutes observation.
- Paired sample t-test before and after the MSR sessions; Independent sample t-test between the MSR intervention and non-intervention sessions.

- B X A MSR Intervention sessions
- B __ A Non Intervention sessions

Behavioural Relaxation Scale (BRS)

Breathing	Relaxed indicated by scores below baseline (first 30 seconds)
Quiet	Low score indicated by low or no vocalization
Body	Low score indicated by less movement of trunk
Head	Low score for still and in midline; High score for a lot of head movement
Eyes	Low score for eyes closed and smooth eyelids
Jaw	Low score for lips parted in centre; High score for closed and tight
Throat	Low score for no movement
Shoulders	Low score for sloped and no movement
Hands	Low score for slightly curled; High score for tight fist or fidgeting
Feet	Low score for pointing away from each other

Table 1: Items in the BRS (Schilling & Poppen, 1983)

Remark: A five point (1-5) score was used for each of the 10 items on the BRS.

Results

- **Description of participant:**
- severe intellectual disability; aged 73;
- followed-up psychiatric unit on his challenging behaviour such as hitting head;
- stereotypic behaviour such as rocking body, shaking head and rubbing fingers;
- one assistance on walking on ground; outdoor activity with manual wheelchair.

Results

	MSR Intervention sessions (n=32)	Non-intervention sessions (n=35)
t-values	t=2.806	t=-0.279
significance	p=0.009	p=0.782

Table 2: Significance on mean difference between pre and post BRS scores

	Post MSR Intervention sessions (n=32)/Post Non-intervention sessions (n=35)
t-values	t=0.775
significance	p=0.441

Table 3: Significance on mean difference between post MSR intervention and post non-intervention BRS scores

	MSR Intervention sessions (n=32)	Non-intervention sessions (n=35)
Pre	28.7	27.5
Post	26.4	27.7

Table 4: Mean values of pre and post BRS scores

Results

- With reference to the values on Table 2 and Table 4,
- the post BRS mean scores were smaller than the pre BRS mean scores.
- It indicated that the behaviour measured was more relaxed after the MSR intervention sessions.
- Therefore, Hypothesis 1: “After the MSR intervention sessions, the relaxation behaviour of the severe intellectual disabled adult will be improved as measured by the Behavioural Relaxation Scale (BRS)” was supported ($t=2.806$, $p=0.009$, $df=31$).

Results

- With reference to the values on Table 3,
- Hypothesis 2: “After the MSR intervention sessions, the relaxation behaviour of the severe intellectual disabled adult will be improved when compared with that of the non-intervention sessions as measured by Behavioural Relaxation Scale (BRS)” was not supported (t=0.775, p=0.441. df=65).

Discussions

- Single case study had the limitation on generalization.
- Actual no. of MSR intervention sessions (70 sessions) was more than measured by the BSR (32 sessions), the relaxation effect of MSR would be under underestimated.
- If MSR intervention sessions had carry over effect, it would interfere the measurements taken by the non-intervention sessions. There would not had significant difference between the post BRS scores of intervention and non-intervention sessions.
- Participant's past experience would undermine the effect . In the study by Slevin & Mcclelland (1999), there was 48.75% reduction on mean scores (36.1 vs 18.5). But there was only 8.01% reduction on mean scores (28.7 vs 26.4) in this study.

Conclusions

- The Hypothesis 1 on relaxation behaviour would be improved as measured by BRS was supported.
- The Hypothesis 2 on more relaxed in behaviour when compared with non-intervention sessions was not supported. It was probably due to carry over effect of MSR intervention sessions. Further studies could be considered.
- This study supported the philosophy that MSR induced relaxation for severe intellectual disabled adult in this specific condition.
- Further investigation on selection criteria, setup of the environment and combination of equipment to increase the relaxation effect were suggested.

References

- Aahby, M., Lindsay, W. R., Pitcaithly, D., Broxholme, S. & Geelen, N. (1995). Snoezelen: its Effects on Concentration and Responsiveness in People with Profound Multiple Handicaps. British Journal of Occupational Therapy 58(7), 303-397.
- Cuvo, A. J., May, M. E. & Post, T. M. (2001). Effects of living room, Snoezelen room, and outdoor activities on stereotypic behavior and engagement by adults with profound mental retardation. Research in Developmental Disabilities 22, 183-204.
- Hulsegge, J. & Verheul, A. (1987). Snoezelen:another world. Cherterfielf: Rompa.
- Kwok, H. W.M., To, Y. F. & Sung, H. F. (2004). The application of a multisensory Snoezelen room for people with learning disabilities---Hong Kong experience. Hong Kong Medical Journal 9(2), 122-126.
- Linsay, W .R., Pitcaithly, D., Geelen, N., Buntin, S., Broxholme, S. & Ashby, M. (1997). A comparison of the effects of four therapy procedures on concentration and responsiveness in people with profound learning disabilities. Journal of Intellectual Disability Research 41(3), 201-207.
- Long, A. P. & Haig, L. (1992). How do Clients Benefit from Snoezelen? An Exploratory Study. British Journal of Occupational Therapy 55(3), 103-106.
- Mount, H. & Cavet, J. (1995). Multi-sensory environments: an exploration of their potential for young people with profound and multiple learning difficulties. British Journal of Special Education 22 (2), 52-55.
- Schilling, D. J. & Poppen, R. (1983). Behavioural relaxation training and assessment. Journal of Behavioural Therapy and Experimental Psychiatry 14(2), 99-107.
- Slevin, E. & Mcclelland, A. (1999). Multisensory environments: are they therapeutic? A single subject evaluation of the clinical effectiveness of a multisensory environment. Journal of Clinical Nursing 8, 48-56.